

CAMPUS TECHNOLOGY

Empowering
the World of
Higher Education

January 2006 \$9

**BUSINESS INTELLIGENCE
SHAKEOUT**

**UPDATE ON
ELECTRONIC PUBLISHING**

**INSIDE NETWORK
VULNERABILITY**

There's newfound campus
revenue in sports-related
mobile content. Is your
school getting in on it?

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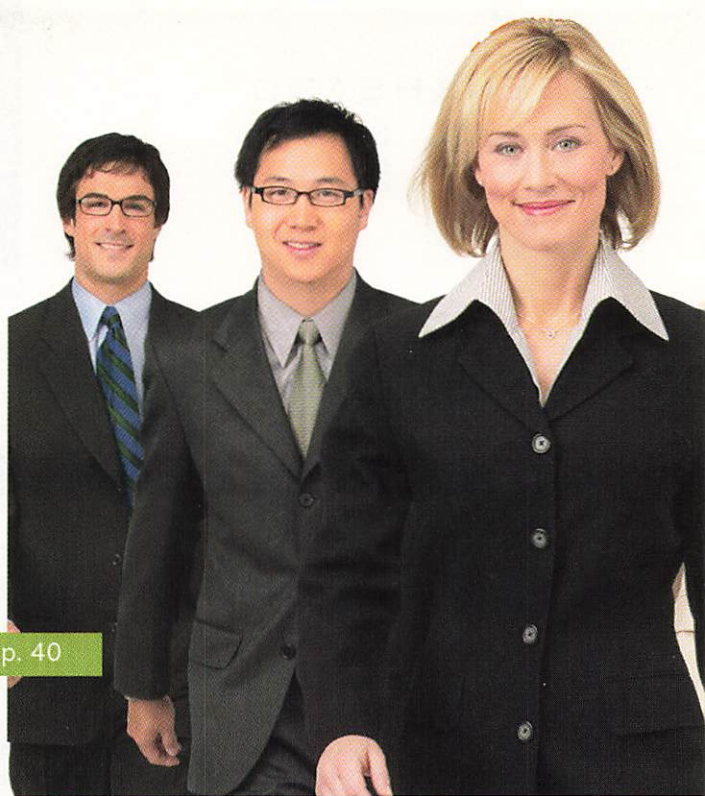
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Campus Technology 2006, Boston, MA



It's About the Relationship

It's not about the ideal CIO or how the latest tech rollout was effected; it's about how the campus/CIO relationship is *structured*.

One of the things I like about this Seen & Heard column format is that it allows me to sit at my desk, peruse incoming information, and then—from my vantage point here on Mount *Campus Technology*—comment on the world of college and university technology as I see it. Pretty nifty, if you ask me. And, I realize, not always sporting. But from my peak here in the clouds, I often get a wide-angle view that's hard to get from inside a campus.

In fact, I was in the middle of reviewing William Fritz's piece in our own Dec. 7 *C² eLetter*, "A Missed Opportunity? Technology Implementations Can Drive Cultural Change" (www.campus-technology.com/missedopportunity), when *CT* Managing Editor Claudia Linh drew my attention to the excellent Dec. 9 *Chronicle* story, "What Presidents Want from CIO's—and Vice Versa" (chronicle.com/weekly/v52/i16/16b02501.htm). Both stories discuss what happens or does not happen when CIOs are focused largely on technology alone. In the *C²* piece, the focus is on mode—the *manner* in which technology implementations are carried out. In the *Chronicle* story, the focus is on the background, vision, philosophy, personality, and breadth of purpose behind the individual who comes to the role of CIO.

"Presidents like to have CIO's who can straddle the fence between the technologists and the others," stated John Buechner, president emeritus of the **University of Colorado**. "We're really looking for a hybrid personality." And according to Mark Clark, director of Computing at the **University of Manchester (UK)**, the CEO needs to be an individual who is able to support the chief information officer and "...have the courage to say, 'No, that will

not work for this institution.'"

But I think there's more to it than personality-typing campus leaders or better organizing the way technology implementations are carried out. Fritz was closer to the problem when he reported that **Georgia State's** recent tech implementation challenge was "an excuse—a *good* excuse—to bring everyone together 'at the table.'"

UC-Berkeley's CIO Jack McCredie, speaking in the *Chronicle* article, strongly advised, "I don't know how a chief technology officer can understand the depth and breadth of opportunities and problems of a college or university and the issues that are on everybody else's plate unless he or she has a seat at that table."

McCredie is right. The CIO should sit at that table, *period*. He or she should also have the same kind of regular interaction with faculty and student senates or similar campus organizations. Building the CIO's cross-functional, pan-campus relationships must be a primary concern of both the CIO and the CEO—and it doesn't much matter what the CIO's personality is, or what challenges the current tech implementation presents. *Any* CIO will see campus and technology user issues more clearly and drive better tech implementations if he or she routinely steps out of the IT vacuum to experience the world as the other campus members see it, and to weigh in on decisions made on other levels. To deprive the CIO of those ongoing interactions, or not insist that they are pursued, is to ensure that decisions are indeed made in a void. When I can see this from up here on the Mount, you know it's time for change. **CT**

—Katherine Grayson, Editor-in-Chief

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JAN 4 - 7

Council of Independent Colleges
CIC 2006 Presidents Institute
www.cic.org/conferences_events/presidents/2006.asp
 Naples, FL

JAN 8 - 11

The Association for Communications Technology Professionals in Higher Education
2006 ACUTA Winter Seminar
www.acuta.org
 Palm Springs, CA

JAN 9 - 13

Macworld Conference and Expo
www.macworldexpo.com/live/20/events/20SF006A
 San Francisco, CA

February 2006

FEB 18 - 22

National Association for Campus Activities
2006 NACA National Convention
www.naca.org
 Boston, MA

March 2006

MAR 6 - 8

College and University Professional Association for Human Resources
CUPA-HR National Seminar
www.cupahr.org/conferences/seminar/nationalseminar.html
 Washington, DC

MAR 19 - 22

League for Innovation in the Community College
Innovations 2006
www.league.org
 Atlanta, GA

MAR 20 - 22

North East Regional Computing Program
NERCOMP 2006
www.nercomp.org
 Worcester, MA

MAR 23 - 27

American Society for Information Science and Technology
IA Summit: 7th Information Architecture Summit
Learning, Doing, Selling
www.iasummit.org
 Vancouver, British Columbia

MAR 29 - APR 1

National Association of Campus Card Users
13th Annual Conference
www.naccu.org
 San Diego, CA

April 2006

APR 4 - 5

Educause Learning Initiative
ELI 2006 Spring Focus Session
Learning Space Design: Integrating the Physical and the Virtual
www.educause.edu/ELI/5521
 Location TBD

APR 17 - 20

American Association of Collegiate Registrars and Admissions Officers
AACRAO 92nd Annual Meeting
Riding the Waves of Change
www.aacrao.org
 San Diego, CA

APR 30 - MAY 5

Interop Las Vegas 2006
www.interop.com
 Las Vegas, NV

May 2006

MAY 10 - 16

SysAdmin, Audit, Network, Security Institute
SANS Security 2006
www.sans.org
 San Diego, CA

June 2006

JUNE 3 - 9

Information Communications Marketplace
InfoComm 2006
www.infocomm.org
 Orlando, FL

JUNE 7 - 10

New Media Consortium
2006 NMC Summer Conference
www.nmc.org/events/2006summerconf/index.shtml
 Cleveland, OH

JUNE 19 - 21

Educause Southeast Regional Conference 2006
www.educause.edu/serc
 Atlanta, GA

JUNE 22 - 28

American Library Association
ALA 2006 Annual Conference
www.ala.org/annual
 New Orleans, LA

>> For more events, go to:
www.campus-technology.com/events

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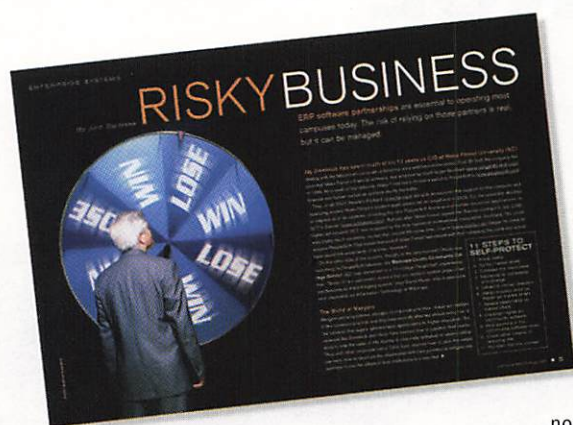
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how higher education does business.



Enterprise Error

Congratulations to John Savarese on his fine cover story, "Enterprise Systems: Risky Business?" [October 2005]. Mr. Savarese is correct in advising that higher education institutions be vigilant when choosing an enterprise resource planning system vendor, especially when hostile industry takeovers and acquisitions seem to make the daily news. I would, though, like to point out an unfortunate oversight in the article: the omission of Datatel as one of the companies highlighted. Mr. Savarese's overall thesis of stability being paramount to a successful technology deployment and long-term relationship speaks directly to Datatel's expertise and achievements in the higher education market. Not only has Datatel been in business for 37 years (26 of those exclusively focused on higher education), but it has also consistently proven to be financially and workforce-stable. Since its inception, Datatel has shown a profit each year, with 2004 revenues over \$95 million. The company's client retention rate is 98 percent, which includes its very first client. The average executive tenure at Datatel is 22 years, with an average employee tenure of seven years—statistics typically not attained by technology companies. This result is a direct reflection of Datatel's culture to take special care of its employees, knowing that they will show the same concern for our clients. In fact, for the third straight time, *Washingtonian Magazine* has recently named Datatel as one of the Washington, DC metro area's "Great Places to Work." Datatel is a solid, stable company, worthy of its fine reputation within the higher education vendor community.

Peter Abzug
Director, Corporate Communications
Datatel Inc.

CT eds and article author Savarese regret the omission of Datatel from this story; it was unintentional, and we recognize the vendor's long and venerable position serving higher education.

Don't Fight; Join

Regarding "Not Now, I'm IM-ing"

[Seen & Heard, November 2005]:

While it is certainly true that "higher ed faculty—whether they like it or not—are going to have to get wireless-savvy fast," educators would do better to adopt new communication technologies rather than attempting to thwart them. Trying to impose classroom rules beyond decorum on slightly rebellious young adults is difficult. Demanding that students turn off laptops and cell phones is Luddism. New technologies and new communications tools create new opportunities to interact with students. Instead of shutting down virtual note passing, use it to get real-time feedback about your lecture. Set up a group chat that anyone in the class can join. You may find that students who are less willing to speak up or ask questions in class will do so electronically. Instructors can hold "virtual office hours" online using IM. Almost all undergraduates use instant messaging. Why not leverage this widely installed user base, rather than fight it?

Geoffrey Buhl
Department of Mathematics
Rutgers University

Xavier Was There

I read your recent article ["After Katrina," October 2005] about university Web sites

its aftermath, providing daily updates on the status of the flooded campus and post-Katrina instructions for our constituents when the long-term impact became apparent. As a former broadcast journalist who covered Gulf Coast hurricanes for two decades, followed by several years of media consulting work, I became keenly aware upon my arrival at Xavier in 2003 of the need to maintain communication with our faculty, staff, and students after several storms came close to threatening our city and our campus. I was also concerned about unanticipated long-term power outages causing us to lose information—which had happened in 2004, following a lesser storm event. That is why we implemented the emergency Web site and the toll-free telephone line; so that our IT people could still shut down our main servers and protect critical data without worrying about power outages, etc. I am proud to say that our system worked extremely well, thanks in part to several months of promoting the new emergency Web site and the toll-free telephone line on a weekly basis, commencing in June with the beginning of the 2005 hurricane season. Even those people who forgot the emergency Web address were able to locate it by doing a simple Google search. Our "micro" Web site and the toll-free telephone line logged thousands of hits during the weeks following the storm—until we were able to restore our regular Web site (www.XULA.edu) to operational status thanks to the generosity of our colleagues at another institution providing us with servers until our own campus reopens. In the second sentence of your article, you

"Demanding that students turn off laptops and cell phones is Luddism...use [new tools] to get real-time feedback!"

being impacted by Hurricane Katrina with interest—and frankly, some consternation—since **Xavier University** (LA) maintained an emergency Web site (www.XULAemergency.com) along with a toll-free emergency telephone line (1-866-520-XULA) throughout the hurricane and

wrote: "What I found as I called the hotlines and scanned the Net for the Web sites of those hardest hit, was universal (and understandable) institutional shock, and varying degrees of rudimentary business continuity—where it existed..." However, as I have attempted to illustrate, you

were absolutely incorrect in your depiction of Xavier University; and I sincerely hope that you and/or your magazine will consider correcting your mischaracterization. I also invite you to visit our home page, where you'll find our online newsletter, "This Month at Xavier: Road to Recovery," featuring articles and photographs of the

information about XULA and that school's students, faculty, and staff were contacting Xavier. With telephone lines down, the Internet was the only way to get any messages through to the affected area. After posting messages on numerous blogs, Web sites and discussion boards, a XULA official, who had evacuated to

type that uses online interactive case studies to improve healthcare for amputees returning from the war.

Kristine Anderson
Indiana University of Pennsylvania

Challenged by the Cell

Just read [Matt Villano's] article on telecom

"You were absolutely incorrect in your depiction of Xavier... a university that had its act together in the face of overwhelming community-wide disaster."

campus post-Katrina, as we prepare to reopen on January 17. Does that still sound to you like "institutional shock" or, in fact, a university that had its act together even in the face of an overwhelming community-wide disaster?

Warren A. Bell, Jr.
Associate VP for University and Media Relations
Xavier University of Louisiana

Warren, I stand corrected, and obviously need help with my own Google searches. Thank you for setting the record straight.
-KG

I read with interest your recent [editorial] about the technology situation on university campuses following Hurricane Katrina. I wanted to let you know how **Xavier University in Cincinnati** responded to Xavier Louisiana in regard to the failure of their Web site. I've included some information from a recent article about the effect of the hurricane on Xavier Cincinnati:

When Hurricane Katrina slammed into the Mississippi and Louisiana coastlines on August 29, little did anyone know how much that would impact the faculty, staff, and students at Xavier University. The university's first action came just hours after the monster storm came ashore and was in response to numerous phone calls and e-mails about Xavier University of Louisiana (XULA)... At the time the only connection between XULA, the nation's only historically black and Catholic college, and Xavier University in Cincinnati was their names. But parents and others frantically searching for any

Chicago, contacted Xavier Cincinnati. That contact lead to other connections and soon Web Director Doug Ruschman and his team were able to post a link on the Xavier home page with information about XULA. Eventually a link to XULA's emergency Web site was established. A Web page was also set up with updates on all of Xavier's hurricane relief efforts. About a week later, XULA administrator Carl Findorff was on the Xavier Cincinnati campus. He worked with Dorinda Giles, associate vice president for Information Systems and Services, and her staff. Together they were able to get the XULA Web site back on line. Xavier's Information Systems and Services is now hosting XULA's Web site.

Debora Del Valle
Xavier University, Cincinnati
Media Relations Specialist

Classroom Help from CT

In our class (Indiana University of Pennsylvania, CURR 740 Technology in the Classroom), we have been discussing the benefits and challenges of technology in the classroom. The past two sessions, I talked about [senior contributing editor Matt Villano's] articles in *Campus Technology* and everyone was very interested. In fact, some are now subscribing to the magazine after those articles. Your work really helps me present ideas and be able to communicate with my classmates. In my job I work for CERMUSA, a research organization (www.cermusa.francis.edu). We research technology to improve healthcare and education in rural areas. Among other projects, I am currently working on a proto-

infrastructure management ["The Next Legacy?" September 2005]. Interesting dilemma the schools are facing with so few kids using landlines and the increased use of personal and school-issued cell phones; enjoyed [his] reporting on it.

Sandy McLaughlin
Soucy Communications Group

Thank You

Although I am a relatively unsophisticated user of technology, I find that I eagerly delve into your magazine when it arrives on my computer. I have found at least one article in each issue that I think important in assisting the faculty in my departments as they expand their use of technology and deal with the issues that arise. My use and enjoyment of the magazine has surprised me sufficiently that I wanted to say thank you.

Karen S. Hill, Chair
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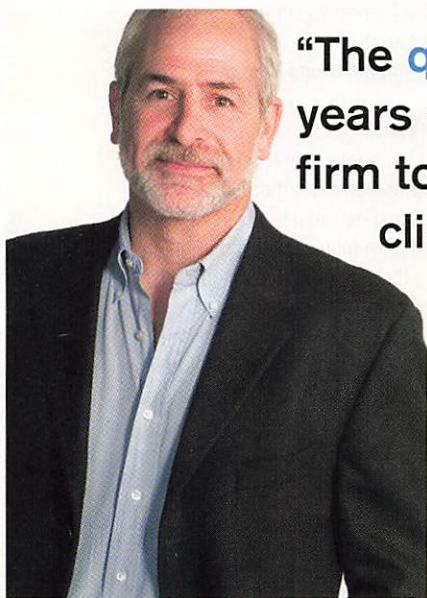
Gimme!

Distressing as it is to see *gimme that stuff* behavior on the conference exhibit floor, it is also a cause for concern as it migrates into the interactions among academics.

Any chance you attended one of the fall 2005 IT conferences? Back in October (it seems so long ago), I was one among the thousands who made the pilgrimage to the annual gathering of academe's IT tribes: the Educause Conference in Orlando (www.educause.edu), and the Conference on Information Technology (League for Innovation in the Community College; www.league.org) in Dallas. Taken together, these two events drew some 9,000 people; about two-thirds from campuses, and a third representing the firms that provide IT and eLearning products/services to colleges and universities.

first to visit a specific set of exhibitor booths in order to get their conference card stamped so that they might be eligible for a later raffle for tech toys.

It's not by chance that some of the firms exhibiting at the Educause and League conferences provide super-sized shopping bags (with their corporate logos): After all, if you are serious about getting stuff, you need a bag for all of it, right? Sure, the bags often contain a lot of paper—advertising collateral and product information—from the eLearning and IT firms exhibiting at the conference. But they also end up being crammed with stuff that the conference attendees



“The quest for ‘stuff’ takes interesting turns. Some years ago, a senior marketing manager at a tech firm told me he literally gave one of his campus clients the shirt off his back.”

Both events schedule pre-conference programs of professional development seminars ahead of the official “opening” of the conference. And “opening” is probably the right word for what happens at both events, as the doors open to the exhibit floor where the representatives of

eLearning and IT firms, large and small, await the arrival of conference attendees. Ahead of that opening, small groups circling the doors to the exhibit hall eventually become large crowds. And when the doors open, there is a rush as the crowd moves forward, onward and into the exhibit hall.

What prompts this crowd behavior? Why would grown academics and campus IT professional staff engage in a kind of “land rush” into the exhibit halls at the Educause and League conferences? Answer: They rush for stuff.

Yes, dear reader, it's true. Your peers and colleagues rush the floor for *stuff*: t-shirts, pens and pencils, notepads, backpacks, briefcases, and other goodies with corporate logos. Some also rush to get their names into the raffles held by individual vendors; others rush to be among the

get (or sometimes take) from the vendor booths.

Some observer descriptions of the “rush for stuff” are akin to the descriptions of the land rush of the Western pioneers some 130 years ago; others are less kind, likening the swarming of attendees to the descent of (academic) locusts. The corporate folks who work both K-12 and higher education events report that while the academics are bad, the K-12 teachers are worse. Teachers (they say jokingly) reach for *everything*—even busted ballpoint pens. (In fairness to the teachers, many grab for stuff that they may use for school supplies, given depleted K-12 school budgets.)

The corporate execs who staff the exhibit booths are captive onlookers to this behavior. Sure, they are there to answer questions; but the veterans of these annual events know that they are also on the floor to pass out stuff.

The quest for stuff takes interesting turns. Some years ago, a senior marketing manager at a tech firm told me he literally gave one of his campus clients the shirt off his back: “Michael,” said the client, a senior campus IT officer at a major university, “that’s a great shirt.” (The firm’s personnel were wearing Rugby-style shirts with a corporate logo.)

“Thanks,” said the marketer.

“No, you don’t understand,” the client reiterated. “That’s a *great* shirt.”

Continued on page 56



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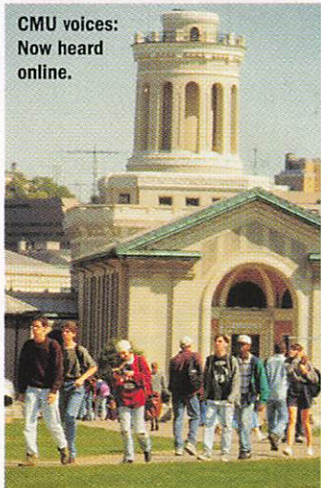
Briefs

NEWS ■ SUPERCOLLABORATION YIELDS BIG COMPUTING CYCLES. A cross-campus consortium of scientists, researchers, and technologists at **Princeton University** (NJ) have pooled their resources to acquire and share an IBM (www.ibm.com) Blue Gene supercomputer on campus. CIO Betty Leydon comments on the collaboration: "Having OIT, the Princeton Institute for Computational Science and Engineering, the School of Engineering and Applied Science, and several individual faculty members all contribute to the cost shows that we all recognize the value of working together to build the best possible IT infrastructure to support research at Princeton." Since its launch ceremony in late November, the system stands ready to tackle complex computations for diverse projects in areas like astrophysics, engineering, chemistry, and plasma physics. ■ **FLOATING TO THE TOP.** The **Tokyo Institute of Technology** or **Tokyo Tech** (Japan) will soon be home to one of the world's fastest supercomputers. The machine is expected to easily secure one of the 10 highest positions on the Top500 List (based on the LINPACK Benchmark)—initially realizing 85 trillion floating-point operations per second (teraFLOPS), with the potential to speed past a dazzling 100 trillion teraFLOPS threshold after adjustments for peak performance. Standard industry components and technology expertise from partners including Advanced Micro Devices (www.amd.com), Sun Microsystems (www.sun.com), and NEC (www.nec.com) factor into a rapid rollout this coming spring. ■ **GREAT HOPES FOR HOPI.** As part of its mission to build an advanced network infrastructure that will meet the rising expectations of the global research and education community, Internet2 (www.internet2.edu) is operating the Hybrid Optical and Packet Infrastructure (HOPI) nationwide testbed that investigates next-generation optical and packet technologies. The latest milestone reached: a demonstration of on-demand optical networking that connected three radio telescopes in far-flung corners of the world to make electronic Very-Long-Baseline Interferometry (eVLBI) observations such as precise measurements of continental drift or motions of the moon... Now, that's *big science*. ■ **ANITA BORG VISION AWARD.**

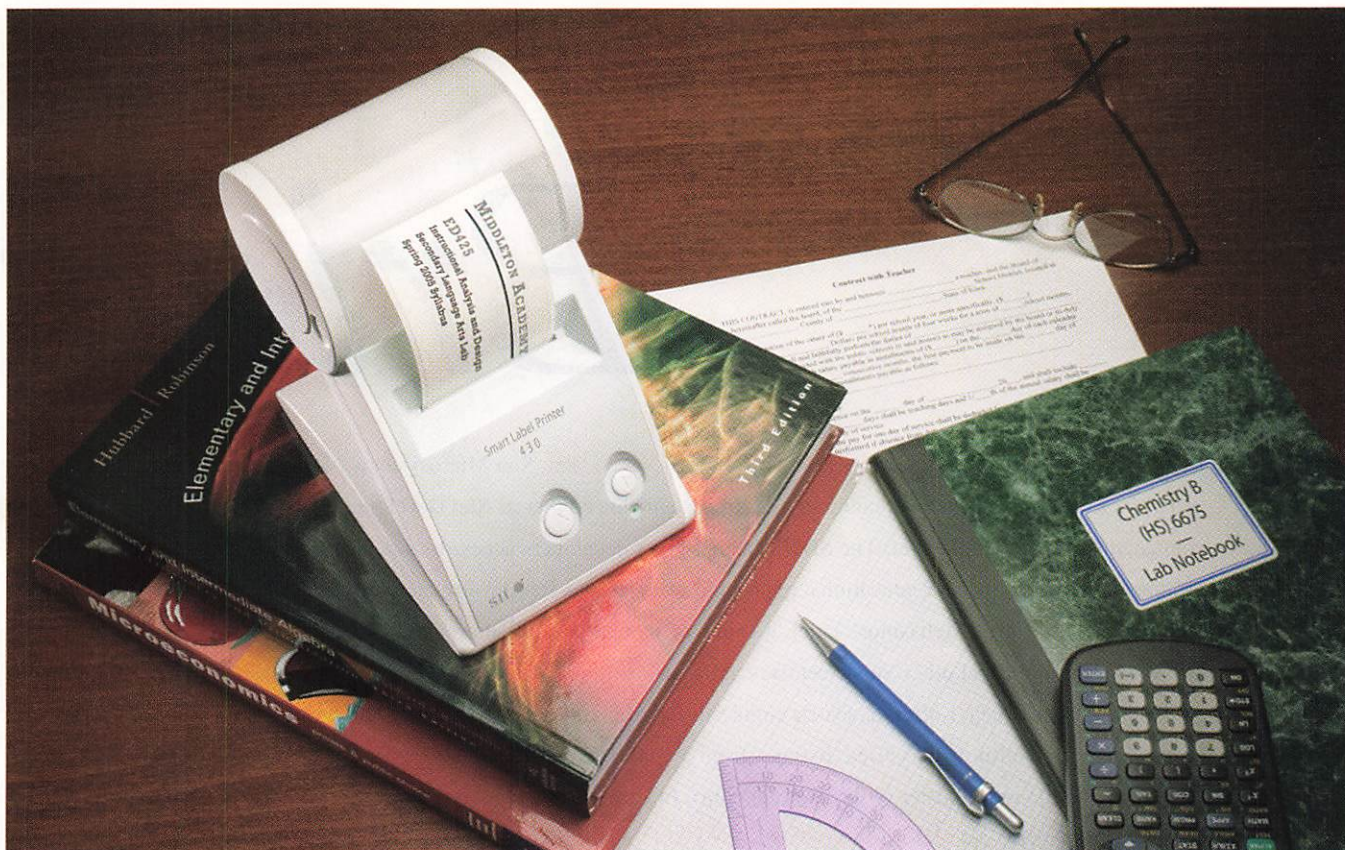
UC-Berkeley's Pamela Samuelson capped 2005 with honors, receiving the year's prestigious Anita Borg Institute (www.anitaborg.org) Women of Vision Award for Social Impact, for her work bridging technology, the law, and community. Prof. Samuelson holds a joint appointment in the School of Information Management Systems and the School of Law. ■ **POLLING ON CAMPUS VALUES.** At **Carnegie Mellon University** (PA), the twice-yearly "Campus Conversations" poll uses online deliberative polling to determine student opinions about life, learning, and values. The next campuswide poll, to be held in the spring, will incorporate the PICOLA online deliberative polling software developed at CMU. ■ **WARNING: THERE ARE NO SECRETS HERE!** Stevens **Institute of Technology's** (NJ) Assistant VP for Student Services David Sheridan, a frequent speaker on financial aid, is determined to protect the innocent and most vulnerable in the college admissions and financial aid process: He's presenting a strong public message to families seeking financial aid, urging them to take advantage of routine, free services and not fall prey to consultants who, while often charging exorbitant fees, claim they can guide clients in the "secrets" of financial aid. **CT**

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INDUSTRY

WHAT'S HAPPENING IN TECH SECTORS

Briefs

NEWS ■ SUN DEVELOPER CHANNEL GOES LIVE. Sun Microsystems (www.sun.com) recently 're-energized' its focus on the developer community, and has announced that its Sun Developer Network Channel (developer.sun.com/channel) is live on the Net. The SDN Channel gives developers access to Sun's vast developer community (including the engineers at Sun) for educational opportunities as well as free Java-related resources. The site also features video interviews with Chris Melissinos, chief gaming officer at Sun; Walter Hardy, president of W. Hardy Interactive (www.whardy.com); and other Sun executives and staff. ■ **OODLES OF OODLES.** Launched this past fall, Oodle (www.oodle.com/college) offers a search engine for local classifieds for colleges and universities, enabling students to search over two million classified listings from popular Web sites such as Craigslist (www.craigslist.org), eBay (www.ebay.com), and Monster (www.monster.com). In addition, students can connect to classifieds from their local and campus newspapers. ■ **HPCC SUPERCOMPUTING.** The College of Computing at **Georgia Tech** has installed two Dell (www.dell.com) high-performance computing clusters (HPCC) at its campus. For projects that require high processing power, the clusters can be joined to create a 192-node supercomputing cluster capable of a theoretical maximum of 2.5 trillion floating-point operations per second (TFLOPS), say Dell spokespeople. Georgia Tech researchers plan to use the systems to study complex problems that include the simulation of aircraft designs and design of computer chips. ■ **DEFENDING THE NETWORK.** With more than 29,000 students, **Northampton Community College (PA)** faces network security issues as do many other schools. The college chose CounterPoint, a network-access-control solution from Mirage Networks (www.miragenetworks.com), to counteract the malicious attacks and threats to its network. ■ **SECURING FILES.** A select few **Villanova University (PA)** students recently participated in a pilot program with U-Vault (www.u-vault.com), an off-site data protection solution powered by redBoomerang (www.redboomerang.com) from

ACCESS CONTROL

NCC selects a solution from Mirage Networks.



MCG Inc. With the U-Vault software, students can save schoolwork from their computers, and be assured that their documents and data remain secure after the software compresses and encrypts the data prior to sending it. The pilot will expand throughout the 2005-2006 school year. ■ **NEW HIGHER ED BIZ UNIT.** To serve the growing needs of higher ed institutions, SunGard (www.sungard-sct.com) has announced that effective Jan. 1, 2006, its SunGard BSR, SunGard Collegis, and SunGard SCT business units are joining together to form SunGard Higher Education Solutions. According to SunGard spokespeople, the formation of the new division will better align the three significant assets that make up SunGard's higher education practice. ■ **M&A, ETC. ■ ADDRESSING THE TECH GENDER GAP.** The National Center for Women and Information Technology (www.ncwit.org) and Cisco Systems (www.cisco.com) have announced a partnership to help raise awareness of educational and career opportunities for women in science, technology, math, and engineering—pointing to research from the Information Technology Association of America (www.itaa.org) that women now represent only about one quarter of IT workers. Cisco reps will participate in NCWIT's growing coalition of more than 65 corporations, academic institutions, non-profit organizations, and government agencies joined in a mission to achieve parity for women in the workforce, say Cisco spokespeople. **CT**

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IT Security: Does it Make the Grade?

Straw poll finds IT security a priority in higher education—albeit an underfunded one.

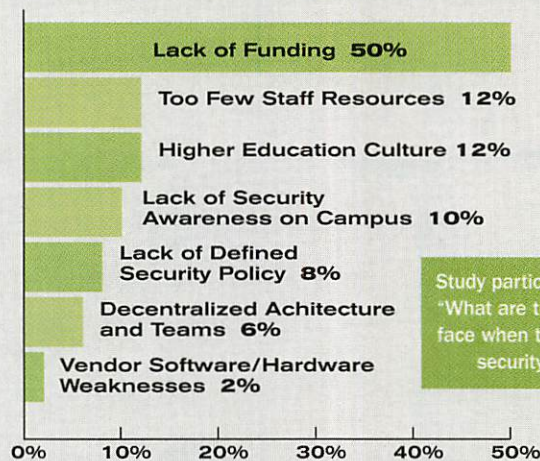
CDW-G HAS RELEASED the results of its informal 2005 sampling of 102 higher education IT professionals on the topic of IT security. In an attempt to understand barriers to improving IT security on campus, survey questions were designed to gauge levels of support by administration, faculty, and students for IT initiatives, as well as to examine administrative prioritization, staffing, and funding. Researchers assigned "grades" based on participant responses, and CDW-G issued a "report card" for 2005.

A's and B's for faculty and administrators. Among the key takeaways from the brief study is that IT security is not "counter to the culture" in higher education: 69 percent of respondents characterized it as a top or very high priority for administrators, 73 percent said that faculty support security policies, and 87 percent reported that security policies

are supported by their executive administration. Clearly, IT security makes the grade as a priority in higher education institutions.

Funding, staffing, and students get C's or lower. Despite the priority recognition of IT security on campus, lack of funding is a significant barrier to improving security—identified by 50 percent of respondents as their biggest barrier. And the organizational resource picture looks even worse when coupled with scarcity of staff: 12 percent of respondents

#1 BARRIER TO IMPROVING IT SECURITY: LACK OF FUNDING



Study participants were asked: "What are the top barriers you face when trying to improve IT security on campus?"

Source: From "CDW-G Higher Ed Security Report Card 2005." Used with permission.

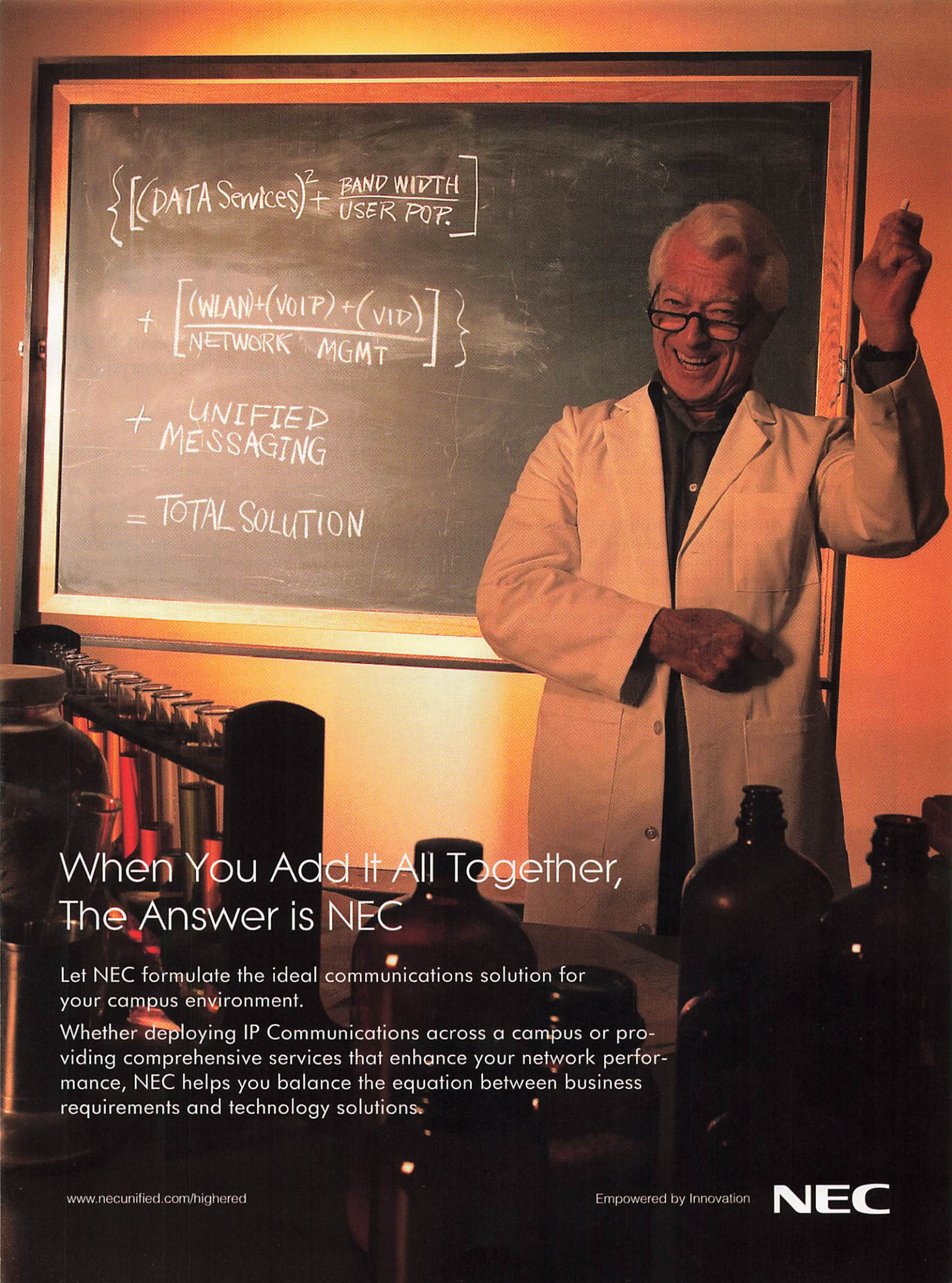
pointed to "too few staff" as their own institution's biggest barrier to security gains. The lowest score, the C- given to student support, is in large part attributed to lack of awareness, rather than lack of regard—a situation that's possibly also related to a need for more staff attention.

For the record. Organizational resource allocation clearly did not match the high priority and recognition given to IT security by higher education IT professionals and faculty in 2005. This year, CDW-G plans to perform a more extensive study, following up on key findings from 2005 data. Will the grades, particularly for funding and staffing, improve? **CT**

THE 2005 REPORT CARD

Security Element	Grade
Administration Priority	A-
Faculty Support	B
Student Support	C-
Administration Support	B+
Funding	C
Staff Time	C
Overall Security Profile	B-

While administration and faculty commitment to IT security earned high scores, funding and staff time allocations received lower marks, as did student support. Source: "CDW-G Higher Ed Security Report Card 2005." Used with permission. www.cdwg.com/hedsecurityreportcard.


$$\left\{ \left[(\text{DATA Services})^2 + \frac{\text{BAND WIDTH}}{\text{USER POP.}} \right] \right.$$

$$+ \left[\frac{(\text{WLAN}) + (\text{VOIP}) + (\text{VID})}{\text{NETWORK MGMT}} \right] \left. \vphantom{\left[\right]} \right\}$$

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Feeling Vulnerable?

When it comes to vulnerability scanners, know your tools, and clarify your goals—or be sorry later.

"You can be sure of succeeding in your attacks if you only attack places which are undefended. You can ensure the safety of your defense if you only hold positions that cannot be attacked." —Sun Tzu, The Art of War

AS A UNIVERSITY OF NEBRASKA cornhusker football fan, I have always looked forward to the spring game that pits the team's best offensive unit against the best defensive unit. For network security folks, vulnerability scanning is our version of that spring game. With it, we can attack our own network to find the weaknesses in our defenses. Then we can fix them before we play with a real-world opponent.

Which Strategy?

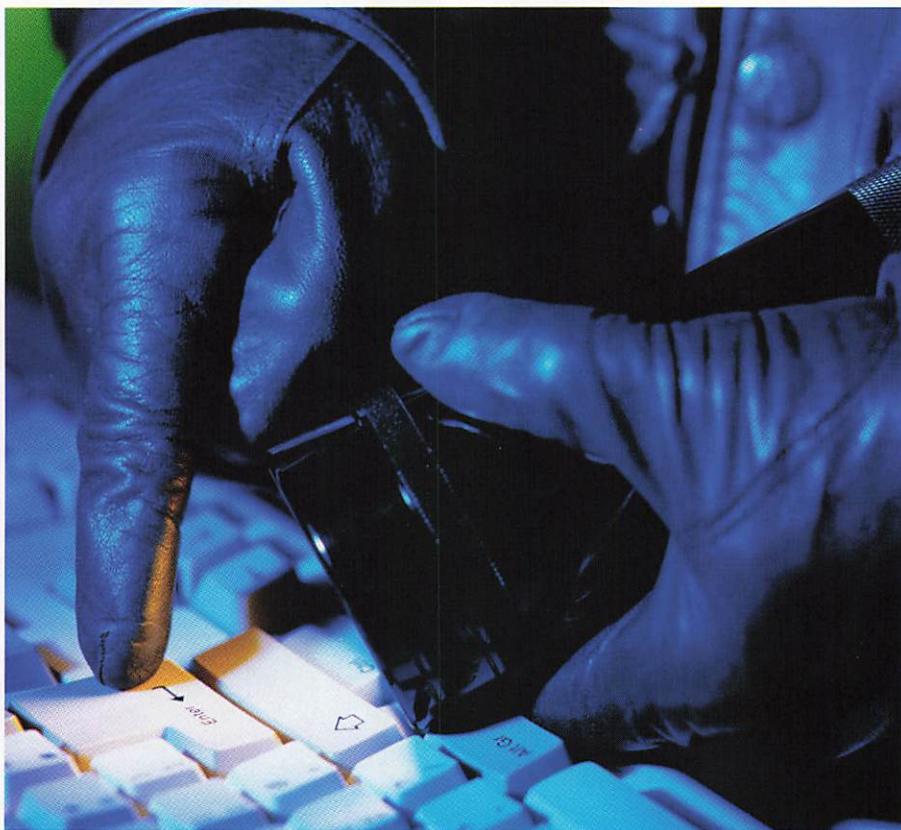
Vulnerability scanners are one part of a broader set of tools that follow one of two broad strategies. The strategy used by vulnerability scanners is to periodically run computer programs that look for weaknesses in your network and attached systems by comparing a database of known vulnerabilities against data about your systems. Another strategy is to monitor your network and attached systems in real time, looking for anomalies that indicate the presence of an intruder. That strategy is really dealing with threats, not vulnerabilities. Yet, each strategy has its advantages and disadvantages and, in practice, both are needed. While the focus here is the first strategy, vulnerability scanning, the trend is to integrate both strategies into a single tool suite.

Tools of the Trade

Higher education has played a central role in the development of scanning tools. In the early 1990s, computer security experts Dan Farmer and Gene Spafford at **Purdue University** (IN) developed Computer Oracle and Password System (COPS), a free public domain collection of programs and scripts that attempt to identify security problems in Unix systems. COPS spawned a wealth of open source and commercial derivatives.

In 1993, Farmer and programmer Wietse Venema developed Security Administrator Tool for Analyzing Networks (SATAN). Like COPS, SATAN recognizes several common networking-related security problems, and reports the problems without actually exploiting them. SATAN and other useful open source tools can be found at www.porcupine.org.

Security Auditor's Research Assistant (SARA) was derived from SATAN in 1995, and enhances it by providing an improved user interface and up-to-date



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► Are the Bad Guys Winning?

EUGENE SPAFFORD, professor and executive director, Center for Education and Research in Information Assurance and Security (CERIAS; www.cerias.purdue.edu) at **Purdue University** (IN), and a former member of the President's Information Technology Advisory Committee (PITAC; www.nitrd.gov/pitac), is one of the world's leading authorities on cyber security—and he's concerned about the future. He feels that today's cyber security strategies are retroactive, and that the number of vulnerabilities makes it increasingly difficult, even ultimately impossible, to keep pace. He points to the fact that the Computer Emergency Response Team Coordination Center (CERT; www.cert.org) at **Carnegie Mellon University** (PA) reports that 3,780 new electronic vulnerabilities were published in 2004—that's more than 10 a day, and a 20-fold increase since 1995. Spafford recently testified before the House Science Committee;



Spafford

"The software and hardware being deployed today have been designed by individuals with little or no security training, using unsafe methods, and then poorly tested. This is being added to the fault-ridden infrastructure already in place and operated by personnel with insufficient awareness of the risks. Therefore, none of us should be surprised if we continue to see a rise in break-ins, defacements, and viruses in the years to come."

The solution, according to Spafford, is simpler, more robust, and better-crafted systems. Unfortunately, a hardware/software vendor's revenue stream depends upon the regular issuance of new and more powerful hardware required to run new and/or updated software jam-packed with new, and largely unused, "features," resulting in a downward spiral of increasingly complex and vulnerable systems. The market doesn't reward simple, stable, well-architected hardware or software. Equally unfortunate, both private and government research is almost entirely focused on short-term patching rather than the long-term development of new, inherently secure computer architectures.

Spafford sees three outcomes to the current trend. In the first, the market realizes the cost of tacking security onto systems as an afterthought, and demands and compensates vendors for simpler, more secure systems. This will probably require a new revenue-generation model. The second outcome is that we limit our use of information technology to avoid security-related problems. The third outcome is that we continue on our merry way until the system implodes.

How serious is the problem? I encourage you to read *Cyber Security: A Crisis of Prioritization*, Report of the President's Information Technology Advisory Committee, 2005, which is available at www.nitrd.gov/pitac/reports/20050301_cybersecurity/cybersecurity.pdf.

vulnerability tests. It is free and based upon the SATAN license. SARA is SANS Top 20 (www.sans.org/top20.htm), and Common Vulnerabilities and Exposure (CVE; cve.mitre.org) compliant. SARA operates under Unix, Linux, Mac OS-X, or Windows operating systems. More information can be found at www.arc.com/sara.

Nessus (www.nessus.org) was developed in 1998 as a free and easy-to-use remote security scanner, and today is the world's most popular vulnerability scanner, used by over 75,000 organizations. The developers have created a series of products (www.tenablesecurity.com/products) and services (not free) around the Nessus software.

Purdue IT Security Analyst Matthew Wirges has developed a Web-based interface and back-end queue manager for Nessus, Vulnerability Scanning Cluster (VSC) that allows users to hierarchically manage scanning policies and networks of hosts, and request automated, immediate and future/recurring scans of a host or group of hosts. It also provides an interface for viewing scan report data. The software is available for free at vsc-dev.itsp.purdue.edu.

Clearly, though, the for-profit world hasn't ignored the market for vulnerability scanners. Security Administrator's Integrated Network Tool (SAINT; www.saintcorporation.com/index.html), Retina from eEye (www.eeye.com/html/Products/Retina/index.html), and Internet Security Systems (www.iss.net) are typical of the full-feature commercially available products. ISS, the current billion dollar commercial-market leader, grew from a small freeware scanner developed by Chris Klaus when he was an undergraduate at **Georgia Tech**, and illustrates the transition from academic research to commercial product.

But just detecting the vulnerabilities on your campus isn't enough. The results of the vulnerability scan must be centrally organized into some kind of report that prioritizes the problems found and identifies remedial action. I remember, somewhat to my chagrin, being involved some years ago in a vulnerability scan of a mid-sized university, and discovering more than 15,000 vulnerabilities! The problem wasn't finding vulnerabilities; it was *organizing* them in an actionable way. One of the advantages of commercial products is that they usually include sophisticated report writers, such as SAINTwriter that are extremely valuable in environments like higher education that include tens of thousands of nodes. The report writers in open source products may not be as well supported.

Another "gotcha" is that scanners work by comparing their database of known vulnerabilities against data about your systems. It is essential to keep that database current to deal with new and emerging threats. Commercial products usually include automatic vulnerability updates and are supported by dedicated staff such as ISS's X-Force. Automatic vulnerability updates for Nessus are available for

Continued on page 56

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Baptist Bible College (MO), for instance, took just such simultaneous steps to avert a declining enrollment trend. The college hired a new admissions director, brought in an admissions consultant, restructured some of its programs, worked on tightening its management of the admissions funnel, and upgraded to a modern information system from Campus Management Corp. (www.campusmgmt.com) to make its new measures practicable. Result: BBC's enrollment of new students has nearly tripled in just two years.

Here are some specific tips for using your information management system to boost the enrollment bottom line:

Use History to Anticipate Student Needs

Mine the information in your student information system (SIS) to figure out how to turn one-time students into repeat customers. **Colorado Mountain College** has begun to be proactive in luring back continuing education students, letting them know about course offerings related to their academic interests.

"There are a lot of lifelong learner students who take one or two art courses for personal interest throughout the year," notes Bill Sommers, dean of Enrollment Services. "Through [Datatel's] Query Builder and Communications Management [www.datatel.com], we are informing those students of all art courses that will be offered in the upcoming semester. This is a great retention tactic to keep students enrolled each semester."

Data certainly can be used to boost retention and keep



U OF WISCONSIN-MADISON cut in half the time needed for an admissions decision.

enrollment high. At **Columbia College of Chicago**, Jenzabar's (www.jenzabar.com) SIS lets the college collect detailed information about incoming students, including grades, test scores, and even comments on a writing sample. Students who may have a hard time surviving their first semester are offered a chance to attend a free Bridge Program to improve their skills before enrolling, says Bernadette McMahon, CIO and associate VP of Information Technology.

Tighten the Loop

Every time a potential or actual applicant contacts the institution, use the power of your information system to make sure that the response is prompt and on target.

The **University of Newcastle** in the UK has recently implemented the "E2R" project (Enquiry to Recruitment), using components from SAP AG's (www.sap.com) campus management, CRM, portal, and business intelligence solutions. The specific focus is to handle and quickly turn around

Jeff Miller/University of Wisconsin-Madison

inquiries from international students. The E2R project has reduced the "time to decision" in international student acceptance by over 60 percent—from six days to 24 to 48 hours, and in most cases, in less than 24 hours. The project is already a runaway success, says Malcolm Woodfield, director of Global Business Development, Higher Education and Research at SAP.

Using Oracle's PeopleSoft (www.oracle.com) software, admissions staff at the **University of Wisconsin-Madison** were able to cut in half the time required for an admissions decision—from four to six weeks, to two to three weeks, says Curtiss Barnes, senior director, Applications Strategy, Education and Research at Oracle.

Demonstrating the effect that efficient operations can have on admissions statistics, **Texas Christian University** gained significant admissions productivity after implementing Oracle's PeopleSoft Finance and Human Resources systems. Applications increased 51 percent, admissions inquiries increased 88 percent, and the number of applications accepted online doubled.

Answer Questions Online

Tightening the loop also calls for quick turnaround to prospective students' inquiries and questions. Nothing is as responsive and efficient as making information available online. Quick access to personalized information strengthens the perception that the institution cares about individual recruits.

"We've made the information in SCT Banner available online in a central portal with immediate self-service access," says John S. Camp, the CIO at **Wayne State University** (MI). "It satisfies students' expectations for on-demand service 24/7."

Make Telephone Contacts More Productive

Relationship tracking software can display the details of previous calls and correspondence so that each phone

counselor can pick up with a prospective student exactly where the last call left off, without wasting time getting up to speed on the student's previous history, interests, and concerns.

In support of its efforts to build relationships with its constituents, **Harding University** (AR) uses its SCT Banner (www.sungardscs.com) administrative system to store information including records of conversations and information received and sent. Harding also uses SCT Banner to assist in the tracking of admissions prospects and applicants from its K-12 school through its undergraduate and graduate programs, according to Mike Chalenburg, assistant VP-ITS at Harding.

Don't Work in the Dark

Clearly, if you want to know if your recruiting strategies are working, you'll need reliable information. That means good reports and analysis to show what progress the institution is making compared to previous years. Accordingly, the **College of St. Scholastica** (MN) is implementing SunGard SCT business intelligence solutions to leverage the data in its administrative system. "We're moving beyond basic reporting to where we can really analyze trends and make projections," says Lynne Hamre, CIO at the college.

Get a Checkup

If you're not sure whether your information system is making the fullest contribution to your enrollment efforts, you do have options: You can get your vendor to perform an assessment (some will provide a checkup for free; see Datatel's complimentary Action Planning Service on its Web site), you can organize an internal review, or you can bring in an expert from outside to help you measure unused potential. Bottom line: It's good to know that you're making use of the power that you already have at your fingertips. **CT**

John Savarese is consulting principal with Edutech International (www.edutech-int.com).

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The Age of the 'Smart' Cell Phone

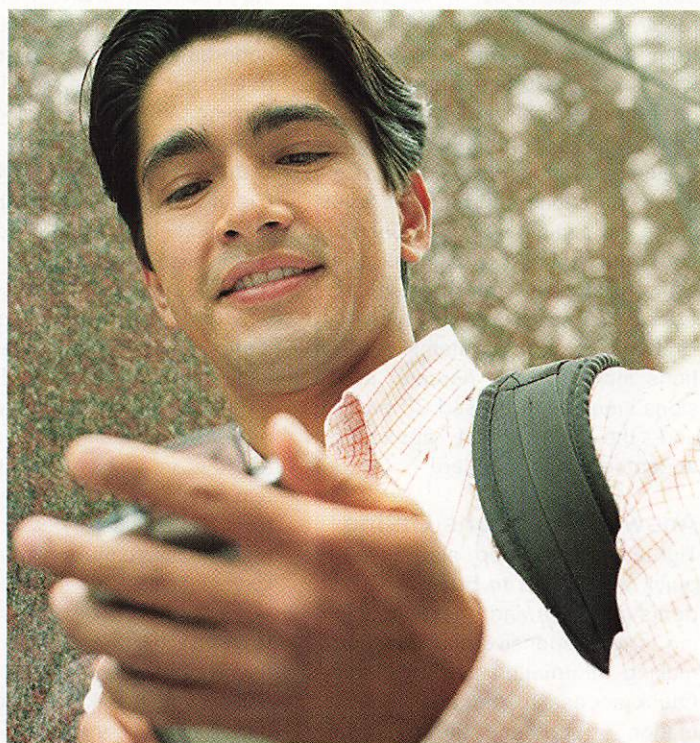
As text messaging overtakes cell networks, converged devices emerge and e-mail moves to the keypad.

LESS THAN 10 YEARS after becoming a critical workday tool for most of us, college e-mail may be on the verge of becoming yesterday's technology. In fact, in the business world, analysts and others predict that the use of instant messaging will surpass e-mail sometime next year—if not sooner. The push will come faster on college campuses, where new consumer-side technologies often find their first footholds. Any college administrator can attest to the popularity of IM-ing.

Text Messaging Changes Everything

But an even more compelling next communications wave is text messaging, now hugely popular with junior high and high school students. Although instant messaging can be conducted over cell phones, it's more commonly accomplished between computers. With its clever shorthand for just about everything, however, text messaging was *born* to exploit cell phones. As any parent of a teen will tell you, a cell phone's tiny 10-key pad is no communication obstacle to an adept text messenger. In Europe and Asia, text messaging has been rampant for years. That's partly because the cost structure encourages it: Texting in Europe is usually cheaper than making a phone call. In the US, cell phone plans that sell huge buckets of voice minutes erase that benefit.

Despite that, text messaging is starting to move onto US college campuses, where seniors don't tend to use it as much as first-year students do. And as text messaging rolls across college campuses, the importance of cell phones can hardly be overstated. Worldwide sales of mobile phones just passed the two-billion-phone mark, headed for three billion by 2009. Actually, that number will probably be reached earlier, since the two-billion mark was achieved well before previous predictions.

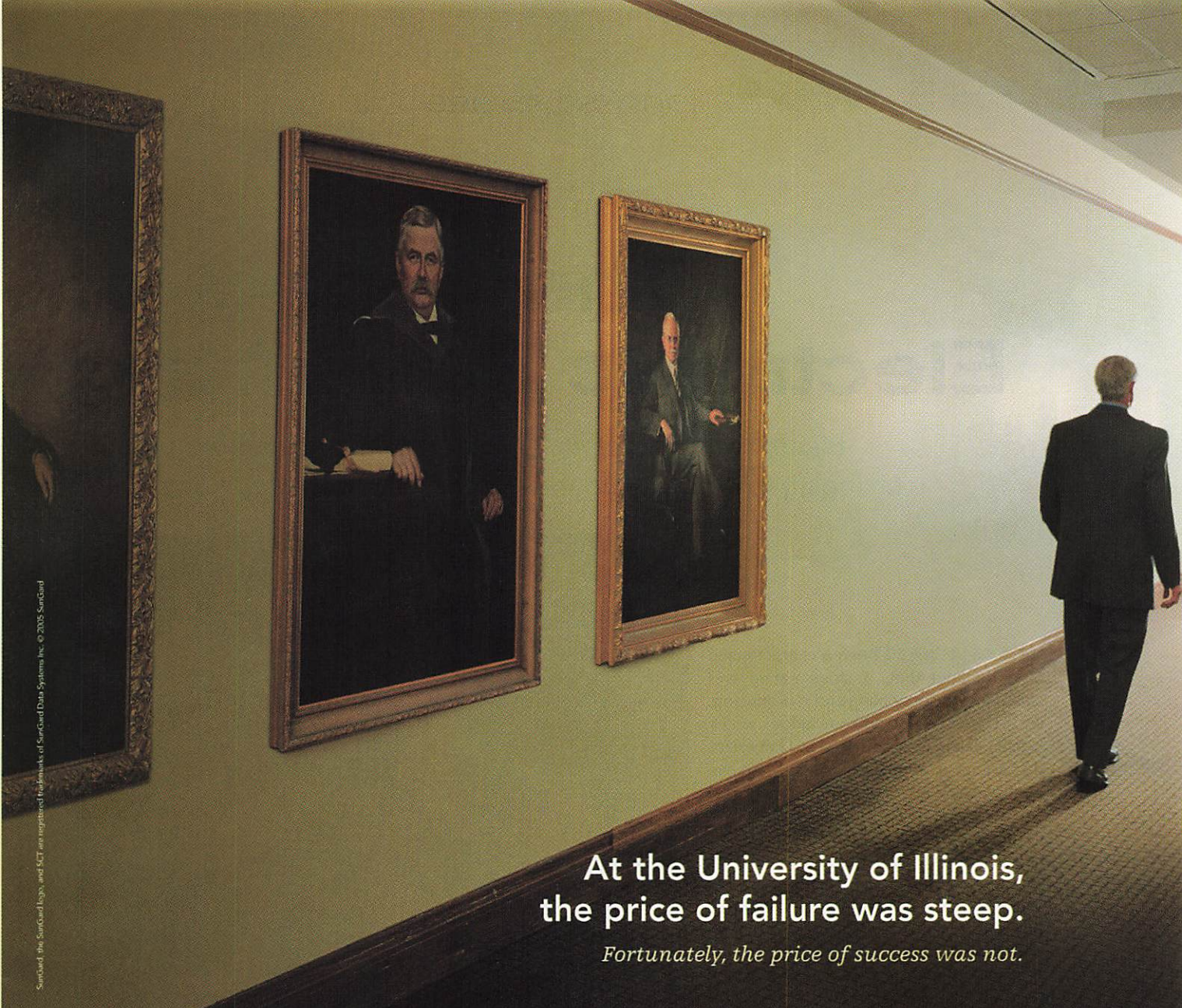


The Devices Converge

Not surprisingly (given Steve Job's ability to drive trends of late), Apple's cellphone/iPod combo (www.apple.com/itunes/mobile) points to a growing reality: the convergence of small wireless devices and big computing power. As processing chips and memory get smaller, faster, and cheaper, more and more, cell phones turn into full-fledged computers.

Schools like **Wake Forest University** (NC) are finding ways to embrace this trend. The private liberal arts institution is currently trying out converged Pocket PC devices in a pilot project involving 120 students and staff. Each student was given a Pocket PC this past fall, with the option of cell phone service. Pocket PCs, made by companies such as Hewlett-

Continued on page 57



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It was a critical time for the University of Illinois. It needed to replace more than 160 aging systems at a time when it was facing a serious budget crisis. The University turned to SunGard SCT for a scalable solution—and SunGard SCT delivered precisely that. As a result, the University replaced all of its out-of-date systems and converted millions of student records on three campuses—well ahead of schedule and under budget. And now, rather than facing a crisis, the University of Illinois faces something far more promising: the future.

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TRANSFORMATION | ACHIEVED

The Impact of Electronic Publishing

Electronic forms of sharing and collaboration are gradually changing the landscape through which knowledge flows.

"IT HAS ALWAYS been a characteristic of our planet that, besides eating and sleeping and squabbling and reproducing, we are also producing knowledge," writes Stevan Harnad, a scientist at **Université du Québec à Montréal** (Canada), who has been a vocal advocate in changing how we go about publishing all that knowledge. Electron-borne information is clearly transforming academic publishing; not just affecting how journals and books are assembled and distributed, but stirring up the culture that surrounds the creating and sharing of new knowledge.

Some of these new manifestations look like hot-rodded versions of things we knew in the past (online journals, eBooks); while others (like research repositories, wikis, RSS feeds) are novel variants that may ultimately live or die, but meanwhile are teaching us lessons about how our research community really works.

Along those lines, a publishing milestone occurred this year. In a world where the top scientific journals can cost subscribers over \$10,000 per year, an online science journal with a subscription price of \$0 won a 13.9 impact-factor rating from the prestigious Thomson Scientific (formerly Thomson ISI) citation-counting service (Institute for Scientific Information; www.isinet.com), which acts as the Nielsen ratings of science publishing. That rating placed *PLoS* (*Public Library of Science*; www.plos.org) *Biology* among the top journals in its category, although it was only two years old.

The non-profit Public Library of Science currently publishes four journals that embody the principles of the Open Access movement, making peer-reviewed medical and scientific research available worldwide for free, under the Creative Commons license. In place of subscriptions, the authors

themselves (or their funding agencies) cover the costs of online publishing, to the tune of about \$1,500 per article. The Directory of Open Access Journals (www.doaj.org) lists 1,761 publications that meet its criteria as "free, full-text, quality-controlled scientific and scholarly journals."

A second approach to open access publishing is called "author self-archiving." Following this so-called "green road," the author publishes the article in a traditional journal, but retains the rights to post it in an open-access repository. Harnad, who edits the *American Scientist* Open Access Forum (amsci-forum.amsci.org/archives/American-Scientist-Open-Access-Forum.html), has advocated this approach. He has argued that self-archiving frees up research more quickly than waiting for every journal (and every scientist) to convert to a new business



model. Maximize access to research and you maximize its impact, goes the argument.

Self-archiving could not exist without online research repositories. The granddaddy of repositories is arXiv (arxiv.org), begun at Los Alamos National Laboratory and now hosted at Cornell (NY). But many public access papers are hosted in local repositories run by the author's host institution. Search engines like CiteSeer.IST (citeseer.ist.psu.edu) provide access to these far-flung resources.

The major for-profit publishing houses are taking notice. This summer, Elsevier lifted the toll-gate on one of its online publications, offering the computer science journal *Information and Computation* (www.sciencedirect.com/science/journal/08905401) free to all comers for one year as an experiment, to see whether free access would increase traffic. Elsevier, Springer Verlag, John Wiley & Sons, and [according to the EPrints (www.eprints.org) database] over 70 other publishers have moved many of their journals into the green category, which means that authors are free to republish their work on open access repositories.

In March, the National Institutes of Health (www.nih.gov) adopted a new policy that will automatically open up much research: If you get an NIH grant, you must now agree to publish your paper under open access terms within 12 months after it appears in a refereed journal. The SPARC Open Access Newsletter (www.earlham.edu/~peters/fos) is keeping track of the impact of the new policy.

But writing papers and getting them published in formal journals is not the only way that knowledge gets to be made public these days. Scientists and scholars are sharing knowledge through technologies such as wikis (e.g., en.wikipedia.org), Web sites written and edited by the communities that gathers around them. PlanetMath (planetmath.org), for example, was founded to compile a

repository of math information. Interested in the four-color conjecture? Check out the article about it on PlanetMath. That particular article is "owned" by Boris Bukh, a UC-Berkeley student, but edits have been suggested by other readers as well.

The Digital Medievalist (www.digitalmedievalist.org) Project is a good example of how a whole shopping bag of online collaborative technologies can be brought together to strengthen an academic community. The project encompasses a wiki (in the form of an encyclopedia that captures the knowledge needed for projects like creating digital editions of medieval works), an RSS feed (a server that sends its subscribers

news about conferences and publications), an online refereed journal, a discussion forum, and a mailing list.

The Tradition Continues...

The English word *publish* was in use before the printing press was invented. It meant "to noise abroad, to make known." Ink-and-paper has served academe well for a long time, but new collaboration technologies may end up being even more important for satisfying our feverish urge to create new knowledge and to share it with our peers. **CT**

John Savarese is consulting principal with Edutech International (www.edutech-int.com).

► Electronic Publishing: Examples and Resources

American Scientist Open Access Forum (amsci-forum.amsci.org/archives/American-Scientist-Open-Access-Forum.html) – Researchers discuss open access issues. Moderated by Stevan Harnad.

arXiv (arxiv.org) – ePrint repository in the fields of physics, mathematics, non-linear science, computer science, and quantitative biology, run by Cornell University (NY).

CiteSeer.IST, Scientific Literature Digital Library (citeseer.ist.psu.edu) – A search engine that finds PostScript and PDF research articles on the Web, focusing on computer and information science.

Digital Medievalist Project (www.digitalmedievalist.org) – Supports the use of digital tools in medieval studies. Includes a wiki, RSS feed, and an online journal.

Directory of Open Access Journals (www.doaj.org) – Lists over 1,700 open-access refereed journals.

EPrints (www.eprints.org) – Provides resources in support of open access, including an institution archives registry, free software for creating a Web-based institutional repository, and a list of publishers' and journals' self-archiving policies.

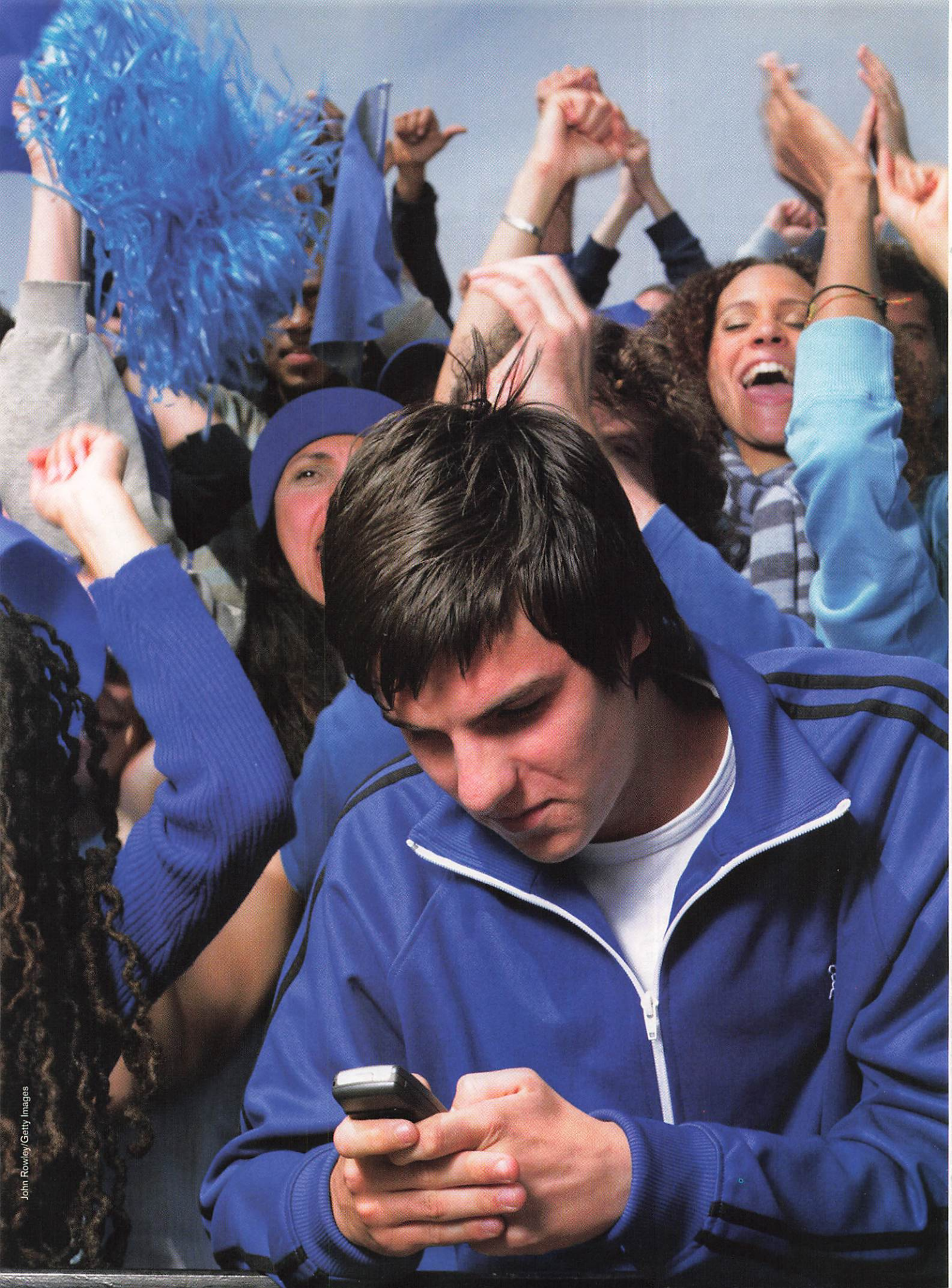
Information and Computation (www.sciencedirect.com/science/journal/08905401) – Publisher Elsevier has made this online computer science journal available free for a year.

PlanetMath (planetmath.org) – Includes a wiki encyclopedia of math knowledge.

Public Library of Science (www.plos.org) – Non-profit organization that publishes PLoS Biology and other open access science journals.

SPARC Open Access Newsletter (www.earlham.edu/~peters/fos) – Monthly newsletter edited by Peter Suber. The Scholarly Publishing and Academic Resources Coalition (www.arl.org/sparc) was initiated by the Association of Research Libraries to advance scholarly communication.

Wikipedia (en.wikipedia.org) – Articles on electronic publishing, open access, RSS, self archiving, Web syndication, and wikis.



by matt villano

MOBILE RAH!

As the number of cell phones on campus continues to rise, many schools are discovering newfound revenue by delivering sports-related mobile content at a premium.



Get your pompons ready, because in 2006, campus football and basketball stadiums aren't the only place you'll hear a school's fight song. At many institutions, fight songs are now playing all over campus: on the quad, on the bus, in

the cafeteria, and sometimes (though not the ideal situation) even in class. Just about any place you'd find a cellular phone, you can hear a school's fight song in all of its rah-rah glory. Thanks to a new and lucrative form of content delivery, the songs actually come from the phones themselves, as special polyphonic ring tones that students can purchase, program to replace the phone's traditional ring, and play every time they receive a call.

Students buy the ditties for anywhere from \$2 to \$3 apiece, and download them from a variety of Internet sites. But that's only part of the transaction. Because the fight songs are licensed, colleges and universities receive a percentage of every sale. Taken individually, these fees don't amount to more than 10 or 15 percent of the total price. As thousands and thousands of students sign up, however, colleges can see tidy new revenue streams. Rich Routman, VP of Business Development at Collegiate Images (www.collegiateimages.net), one of the companies that licenses ring tone content, points to the revenue possibilities. ▶





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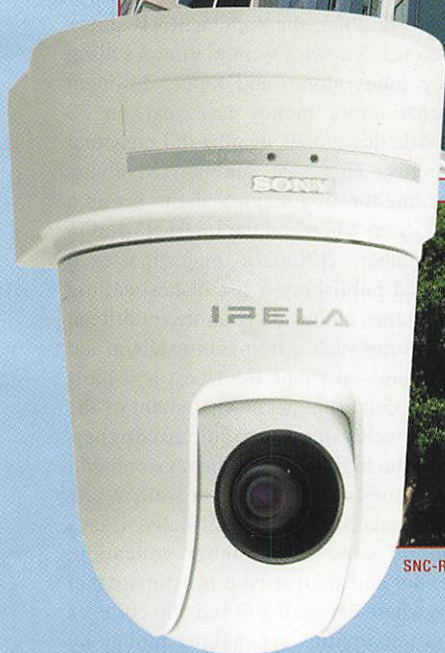
At the Grossmont Union High School District, Sony IP cameras enable a single operator to monitor eleven widely dispersed high schools. At the San Mateo County Court, a rush installation helped sheriffs maintain security during the Scott Peterson trial. And in New Orleans, a citywide deployment is helping to restore order.

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The rooftop at the San Mateo County Court now features a Sony IPELA IP camera.



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Sony IP cameras cover 11 high schools for the Grossmont Union High School District.

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"If two years ago, you asked a college student what a ring tone or wallpaper was, they would have looked at you like you were crazy," says Routman, whose organization is a subsidiary of the Collegiate Licensing Company (www.clc.com) in Ft. Lauderdale, FL. "Today, these kids simply can't get enough of the stuff, and colleges and universities are cashing in."

Though the mobile content business for higher education is still in its infancy, opportunities surrounding mobile content delivery could be veritable goldmines for colleges and universities.

too-distant future, and that the sky's the limit for what happens next.

"This is undoubtedly one of the most exciting industries in the world right now," he says, likening the mobile content business to a second coming of the dot-com boom. "For colleges and universities, the possibilities are endless."

The Environment

It's no secret that there's money to be made around college sports. The National Collegiate Athletic Administration (NCAA) generates more than

and 24 have purchased at least one ring tone. According to Mark Donovan, an M:Metrics analyst, no other demographic group has embraced mobile content with such passion.

"These statistics indicate that especially among young people, mobile phones are just another distribution platform for content and applications," Donovan says. "The medium is something that should be on the roadmap for everyone, in terms of monetizing."

In the consumer industry at large, the ring tone is quite literally ringing off the

"There is no arguing that cell phones are the tools of choice with today's generation. This [mobile sports content] lets us extend our brand and create a new revenue stream, while giving our fans something they'll love." –David Lovell, University of Miami

Those schools that have been licensing content for some time have earned tens of thousands of dollars in a matter of months since the industry took off in the summer of 2005. Other schools can't sign up for the services quickly enough; across the country, campus VPs and marketing officials have been scrambling to get mobile content delivery programs up and running before the fall football season ends and the big-money winter basketball season begins.

Most of these deals are built around ring tones, still images (such as graphical-logo wallpaper for cell phone screens), and video clips; the basic trio of mobile content in higher education today. In some cases, however, trailblazing schools are also inking mammoth licensing agreements for anything and everything: sports scores via text-messaging, breaking news updates, sales on merchandise, and more. Though these latter deals are harder to find right now, Mike Merrill, chairman and CEO of content provider Smartphones Technologies (www.smartphones.com), says they may be more common in the not-

\$2.7 billion in licensing revenue per year, exceeding both NASCAR and the National Hockey League. Furthermore, college sports have the longest selling season of any major sports licensor, starting in August and running through June. Add to this the fact that six out of every 10 Americans own a cell phone, and that college-aged Americans love buying high-tech gadgets and gizmos, and colleges and universities have a great opportunity to earn big bucks delivering licensed content to mobile phones.

Currently, there's no bigger mobile content market than that of ring tones. In 2005, global revenue exceeded \$3 billion, according to Ipsos (www.ipsos.com), a firm that tracks these trends. And US forecaster Jupiter Research (www.jupiterresearch.com) estimates that annual ring tone revenues totaled \$417 million last year, and will grow to \$724 million by 2009. A recent survey by M:Metrics (www.mmetrics.com), the Seattle market research firm, indicates that nearly 30 percent of all cell phone owners between the ages of 18

hook. In 2005, the popular R&B singer Beyonce Knowles went platinum selling ring tones alone, and rapper Eminem earned more money last year on \$2 mobile downloads than he did on actual records. This past summer, Madonna became the first major artist to set up a ring-tone "shop" on the Internet. And in November, *Billboard* magazine even started publishing a list of best-selling ring tones alongside its more traditional categories such as best-selling album and top song—perhaps the truest and most earth-shattering acknowledgment of the ring tone's value as pop culture currency.

In the higher education environment, ring tones are doing just as well. While no research firm specifically tracks mobile content in higher education, vendor and analyst experts estimate that anywhere between 300 and 500 colleges and universities are making money by selling this kind of mobile content, and that the number is growing every month. Donovan notes that the higher education marketplace has embraced other forms of mobile content too, including video clips and cell phone

wallpaper. In some instances, schools even incorporate text messages and other alerts into their offerings (see "What's Up Next?" below).

"There is no arguing that cell phones are the tools of choice with today's generation," says David Lovell, director of Marketing at the **University of Miami** (FL). "This [mobile sports content] lets us extend our brand and create a new revenue stream, while giving our fans something they'll love."

Market Leaders: Who's Doing What

The current world of mobile content can be divided into two: content aggregators and content distributors. Aggregators are those firms that pull together content and put it up for sale. Distributors, on the other hand, are cellular carriers such as Cingular (www.cingular.com), T-Mobile (www.t-mobile.com), Verizon (www.verizon.com), and Sprint Nextel (www.sprint.com). Carriers present customers with the opportunities to purchase content at every turn, incorporating fight songs and other types of mobile content into broad-sweeping ini-

tiatives targeted at college-bound teenage customers. Students can either purchase content from their cell phone providers, or buy it directly from the aggregators, where it usually costs less.

One aggregator of note is Summus (www.summus.com), a Raleigh, NC vendor that burst onto the scene back in 2004. Within weeks of its debut, Summus had unveiled more than 200 fight songs and logos for download on a special Web site, www.fighttones.com. The company promoted these efforts by running newspaper ads on major college campuses, and by distributing posters, brochures, and other information in freshman dorms and at tailgate events. Today, CEO Gary Ban considers sports low-hanging fruit around which colleges can't help but build additional revenue streams. Mobile content, he adds, provides the perfect opportunity to do just that.

"If I'm going to Carolina, I want to make sure I have the Carolina logo and Carolina fight song on my handset, because whether I'm a sports fan or not, I'm a Carolina fan because I go to the school," Ban says. "This is the kind of

thinking colleges must acknowledge with very basic and affordable services, because it's a great way to make money."

Smartphones may well be Summus's biggest competitor. The company launched quietly in 2003, when the ring tone market was something of an amusement for analysts. Two years later, by summer 2005, Merrill's Smartphones and Routman's Collegiate Images announced groundbreaking licensing agreements with more than 30 leading colleges and universities in the US. These agreements gave Smartphones exclusive licensing rights to many of the country's top schools, and marked the first time officially licensed college sports content was offered for download to mobile customers—a truly big deal.

Today, under these agreements, Smartphones creates officially licensed wallpapers, animated screensavers, mobile video clips, ring tones, text messaging campaigns, and mobile games. In addition, to constantly refresh content, the company has made a practice of sending its own photographers and video crews to games throughout the year. Smartphones



What's Up Next?

THE WORLD OF mobile content delivery is changing monthly. Today, most aggregators sell ring tones, still images, and video clips. Tomorrow, many of these companies will be supplementing their product

offerings with text messages and news alerts that offer users up-to-the-minute information on sports and other issues of interest.

Already, some aggregators have piloted this approach. Smartphones Technologies (www.smartphones.com), for instance, recently rolled out a number of test projects revolving around Short Message Service (SMS) communications of no more than 140 to 160 characters per message. CEO Mike Merrill declines to specify where these trials are taking place, but notes that initially, the company will be broadcasting information such as scores, locker room reports, and more.

"Different schools have different desires, so as we figure out what it is that schools want to do, we'll broaden the program a bit," he says. "We're trying to build flexibility into the program so

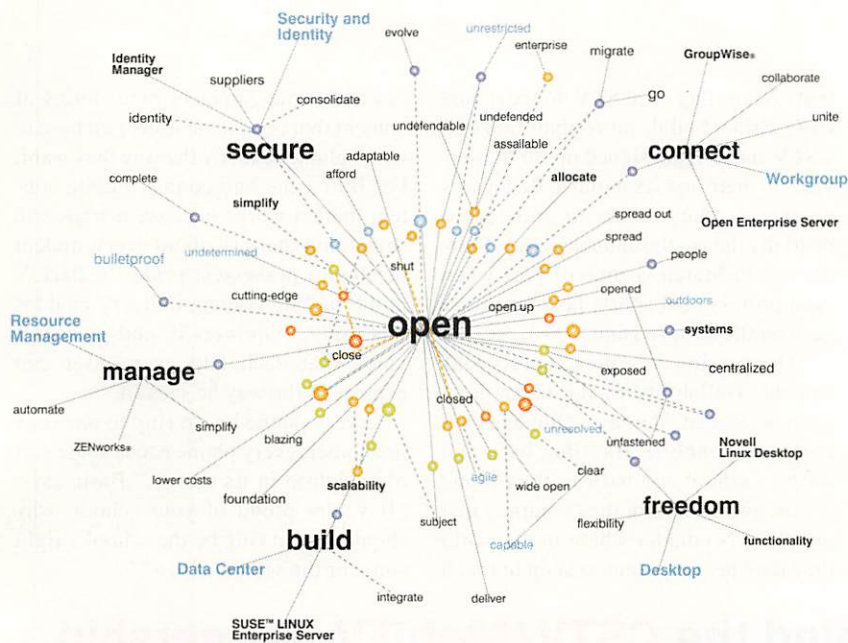
our customers can use it as much or as little as they want to."

According to Merrill, SMS is only the beginning. As the technology becomes more sophisticated, Smartphones and other aggregators ultimately are shooting for Multimedia Messaging Service (MMS), an enhanced transmission service that enables graphics, video clips, and sound files to be transmitted over mobile phones. Once this technology becomes reality, experts predict that advertisements will begin appearing on mobile content airwaves, as well.

Rich Routman, VP of Business Development at Collegiate Images (www.collegiateimages.net), agrees, predicting that as more and more companies turn to MMS, the high-fidelity 3G Network that exists today (but is largely unpopulated) will become more crowded, both with legitimate traffic and with advertisements.

"I don't think mobile advertising will relate to a ton of additional consumer product market sales, but it certainly will be present in the near future," he says. How schools utilize these advertisements, he adds, is up to them. "One year from now, the mobile content industry could change again. That's the beauty of it all."





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artists use these new images to create designs that combine school logos with action plays to create content that's entirely unique for some schools. In the next few weeks, Merrill says the company even hopes to send teams to campuses to record cheers and sell them as audio files.

"Let's face it—a loyal fan is going to download more than just one thing," he says. "However a student or alumnus chooses to personalize a phone, we hope to have something for everyone."

Summus and Smartphones specialize largely in still images and basic audio files; College Sports Television Networks

tent. According to CSTV founder and CEO Brian Bedol, more than 600,000 CSTV subscribers signed up for the services in their first six months. Bedol says he expects that number to grow exponentially during the annual NCAA Tournament in March, a time of year when even professional sports fans turn their gaze on the college game.

"The passion of college sports fans and the availability of the technology are a perfect fit," he says. "Students are completely mobile, traveling back and forth to school and back to their home towns, and as alumni they continue that practice. No matter where in the world they may be, they want to keep in touch

downloadable games or other forms of content that cell phone users purchase to outfit phones exactly the way they want. For Baric, the burgeoning mobile content market works because it trades on something that just about every student or alumni possesses: pride. In Baric's mind, mobile content delivery enables this pride, empowers it, and gives it a voice that each and every user can express in the way he sees fit.

"Every phone has to ring to one tune or another; every phone needs some sort of backdrop in its screen," Baric says. "If you're proud of your school, why shouldn't that ring be the school's fight song, or the school's logo?"



The idea behind the CSTV/MobiTV partnership (and others like it) is simple: Give students what they want, when they want it, in the medium that they desire most.

(www.cstv.com), however, focuses on more dynamic stuff. The company, which also owns the popular U-WIRE college news service (www.uwire.com), has made a name for itself broadcasting college sporting events and other sports-related programming including live games, special events, news programs, and talk shows on a private cable network and over the Internet. Since September 2005, however, most of the network's regular programs have been available for download to mobile devices through the private MobiTV service (www.mobitv.com), and V-Cast (www.getvcast.com) from Verizon Wireless.

The idea behind these partnerships is simple: Give students what they want, when they want it, in the medium that they desire most. While CSTV doesn't run the MobiTV or V-Cast services, the company works with these entities to deliver its ordinary television and Internet broadcasts in the form of mobile con-

tent with their alma mater. Our services enable that kind of connectedness."

The Rest of the Pack

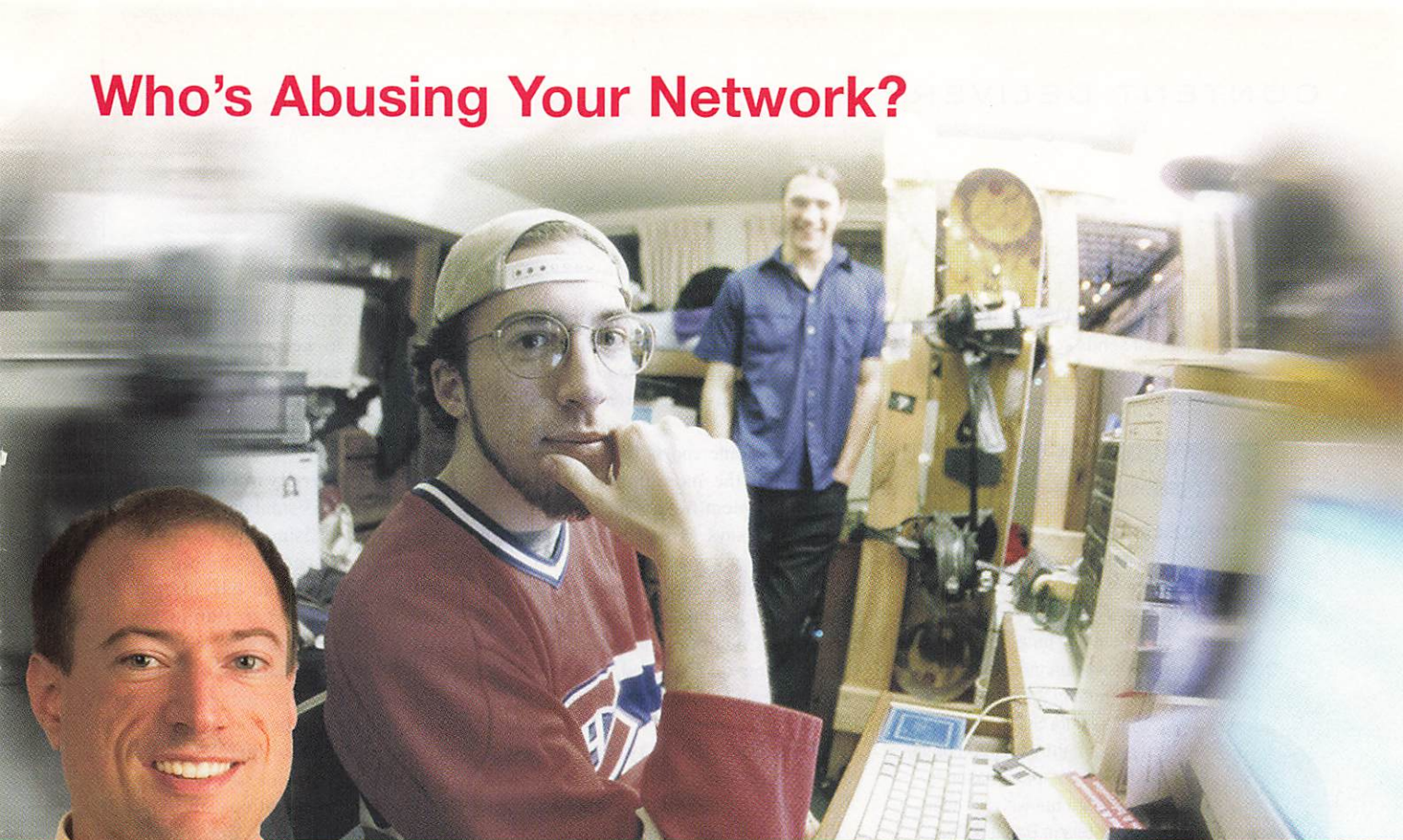
Summus, Smartphones Technologies, and CSTV are undoubtedly leaders in the higher education mobile content space, but they are not alone. A variety of organizations have joined the ranks in recent months, as well, offering a mix of ring tones, still images, and video clips for downloading at will. Atop this second tier of content aggregators is 2Thumbz Entertainment (www.2thumbz.com), an NC-based outfit that collaborated with Summus on Fighttones.com. Under the auspices of CEO Mark Baric, 2Thumbz also sells its content through Verizon and Cingular. In all, the mid-sized content aggregator represents more than 250 schools.

Baric is a bit of a philosopher when it comes to content delivery, and he considers his company part of the wireless entertainment industry. When pressed, Baric insists that downloadable ring tones and logos are no different from

On a smaller scale, Cellus (www.cellus-usa.com), a Colorado aggregator recently acquired by Airborne Entertainment (www.airborne-e.com), offers ring tones and images via many of the biggest carriers. The company claims to serve nearly 300 colleges, but won't reveal which ones. The no-frills SchoolFightSongs.com (www.schoolfightsongs.com), on the other hand, is much more open with its customer list, cataloging all of the schools on one Web page. This last site doesn't work with carriers and instead has opted to sell content independently online. Surprisingly, the company manages to charge \$5 per song—particularly high considering that most of the ring tones are monophonic.

Even television networks are getting into the game. ESPN (www.espn.com) recently launched ESPN Mobile, a partnership with Sprint, through which ESPN Insider members can receive a discount on ring tones, images, games, and other forms of mobile content in the area of college sports. FOX Sports (foxsports.com) offers a similar option through its FOX

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Sports Mobile service, a monthly \$4.99 service that sends scores and updates via text message to cell phones from just about any of the carriers. As of now, both

► Better Safe Than Sorry

MOBILE CONTENT may be fun to download, but it's not always safe to do so. Just as files, images, and e-mails can infect PCs with viruses, spyware, and other ills, so too can corrupted ring tones and wallpaper images wreak havoc on mobile devices—in many cases, ruining them forever.

That's where SmartTrust (www.smarttrust.com) comes in. The company, based in Sweden but with US headquarters in Dallas, offers antivirus and other security protections for mobile phones of all kinds. These protections scan

all forms of mobile content as it is downloaded onto the phone. If the software detects a corrupted file, it blocks the file and notifies the user immediately.

According to CEO Johan Valentin, SmartTrust delivers this protection in much the same way as vendors Symantec (www.symantec.com), McAfee (www.mcafee.com), and F-Secure (www.f-secure.com) offer protections for personal computers. Customers sign up through their cellular carriers and pay for a year's subscription. In turn, SmartTrust delivers periodic updates that keep the user's mobile device protected against all of the latest threats.

"As customers download more and more forms of mobile content, there is a higher likelihood that they will download something harmful to the phone," he says, noting that the service costs anywhere from \$5 to \$20 a user, depending on the number of users. "It's our job to step in and make sure this doesn't happen."

While the company hasn't worked much with colleges and universities thus far, Valentin notes that he is seeing a spike in interest from these customers, and expects this segment to grow exponentially in the months ahead. Stay tuned.

services mimic the providers' general Internet sites, prompting some critics to question whether mobile content from a television network is really worth the investment.

"Sure, some sports fans will be interested, but the most important thing to mobile content buyers is still quality of delivery," says Mike Masnick, CEO of Techdirt (www.techdirt.com), a CA-based business and technology blog that tracks various industries including mobile content. "Who are you going to trust to have better quality?" adds Masnick, "A well-known mobile operator, or ESPN?"

What They're Saying

These concerns haven't seemed to phase academics one bit. On the contrary, throughout academia, officials at those colleges that have embraced mobile content simply can't say enough about the new market. Many campus marketing executives only agree to discuss their deals off the record, for fear of violating confidentiality agreements. In all of these cases, officials say they are getting at least 10 percent of all mobile content purchases, meaning that for every \$2 a student spends on a ring tone, the institution immediately earns 20 cents. In dribs and drabs, this may not amount to much, but if 10,000 students buy only one item each, the institution gets \$2,000 it would not have had otherwise, and if over the course of the year those students purchase again and again, that's a nice little revenue flow.

Officials also point to the way mobile content enables students and alumni to customize phones with their own recipes for school spirit. Steve Mackenzie, associate athletics director for Marketing and Development at the **University of Arizona**, hails the way a recent contract with Smartphones enables his school to let users set up their phones with whatever ring tones they like. Frank Cuervo, director of Marketing and Promotions at the **University of Missouri**, agrees, adding that he's looking forward to parlaying this customizability into an opportunity for the school to extend its brand further and deeper than ever before.

"This new medium...is giving us a great way to keep in touch with our fans," he says. "At the same time, [we're] letting them show their spirit and support their school [in whatever way they want]."

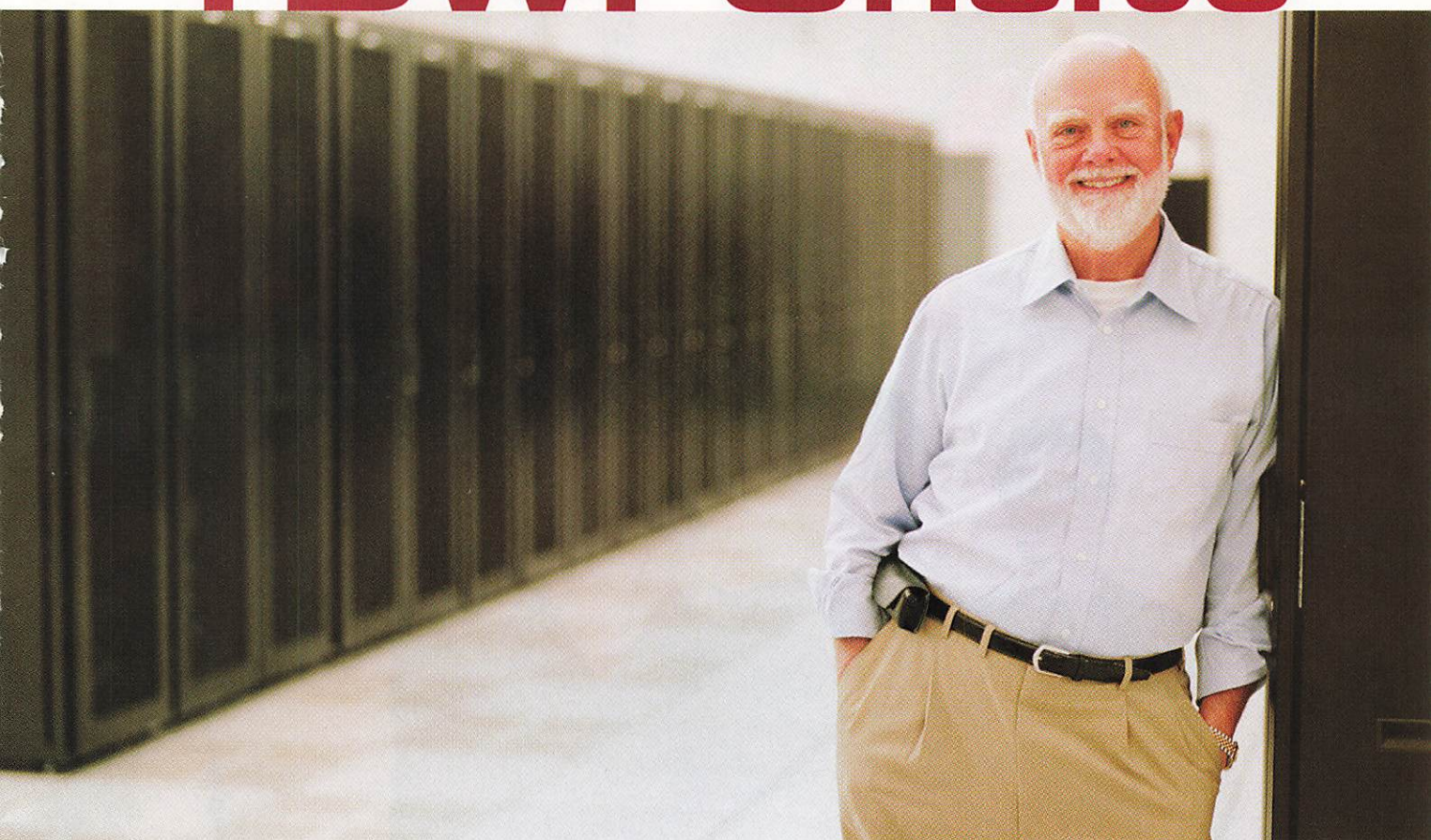
At the **University of Pittsburgh (PA)**, Lori Burens, assistant director of Licensing and Advertising, is looking forward to another aspect of mobile content delivery. While Pitt has offered ring tones for about a year, Burens explains that the school recently signed a deal with Collegiate Images to offer a variety of logos and other images for users to install on their phones as wallpaper. This deal marks the first time Pitt has signed with any aggregator to distribute images. In addition to variations on the school logo, images include action shots of football players, basketball players, the Pitt Panther mascot, and cheerleaders, to name a few.

Once the deal goes live, Pitt students will have the ability to choose from hundreds of different images and buy as many of them as they'd like for \$2 apiece. Burens declines to reveal what percentage of each purchase will go back to the school, but she says that the university is hoping to earn at least \$10,000 by the end of the school year. Ideally, she notes, students will purchase five or 10 different images, store them on their phones, and cycle images in any way they deem appropriate. However the image experiment plays out, the feature will complement the school's healthy ring tone business, adding to the number of forms of mobile content Pitt students and alumni can buy.

"If you're willing to personalize your phone with a ring tone, there's no reason you wouldn't be willing to add some images to the mix, as well," she says. "The more creative our [students and alumni] get with all of this, the more revenue we'll generate as a result, and that's something that will make everyone happy." **CT**

Matt Villano is the senior contributing editor of this magazine. He is based in Half Moon Bay, CA.

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Shortlist?

The vendors are coming!

Business intelligence (BI) software will improve your operational and financial performance, but the market is set for a shakeout. Choose your partners wisely.

By Joseph C. Panettieri

Tom Mauriello knows how to build profitable relationships. As vice president of Development at **New York Institute of Technology (NYIT)**, Mauriello and his team have driven annual giving to the college 80 percent higher since the 2003-2004 academic year. Moreover, NYIT's contributor base has increased 21 percent since that time.

What's the secret to NYIT's success? The three-part answer includes effective data-driven decision-making, progressive collaborative tools, and a heavy emphasis on personal relationships. "The best technology in the world will certainly help your cause," says Mauriello. "But you also need extensive relationships with people who care about the development of your institution and its students."

Even so, it takes a solid technology infrastructure to mine and maintain those relationships. In recent years, NYIT has shed Digital VAX legacy systems and increased its reliance on enterprise and BI software from Datatel Inc. (www.datatel.com), Microsoft Corp. (www.microsoft.com), and Oracle Corp. (www.oracle.com) to drive operations forward. ►



The Bandwagon to Consolidation

NYIT isn't alone. Across the country, universities are leveraging BI software to improve data-driven decision-making, which can enhance operational and financial performance. The lengthy list of BI software providers includes Business Objects SA (www.businessobjects.com), Cognos Inc. (www.cognos.com), Hyperion Solutions Corp. (www.hyperion.com), Microsoft, Oracle, SAS Institute Inc. (www.sas.com), and numerous second-tier players. Even open source companies such as Greenplum (www.greenplum.com) are leaping into the BI sector (see "Seeing Green?" p. 45).

Demand for such software remains

strong: Global BI sales are growing 10 percent annually and now top about \$4.5 billion per year, according to International Data Corp. (www.idc.com), a Framingham, MA-based research firm.

Still, industry pundits say the BI sector, much like the enterprise software market, is ripe for a shakeout. "When it comes to business intelligence software, you're talking about a very fragmented market with lots of profitable players," says Ed Golod, president of Revenue Accelerators Inc. (www.rac-inc.com), an executive consulting firm in New York. "That's a recipe for consolidation."

Oracle agrees. Since 2003, the \$12.35 billion database giant's board of directors has maintained a shortlist of potential

buyout targets, according to Oracle's SEC filings. The list includes such database and BI specialists as Sybase Inc. (www.sybase.com) and Business Objects.

Although Oracle declined to discuss its acquisition list, BI vendors themselves are snatching up tiny companies to round out their software portfolios. For instance, in October, Business Objects purchased privately held Infommersion Inc. (www.xcelsius.com), a leading provider of information visualization and presentation software. Similarly, Hyperion earlier this year purchased Razza Solutions Inc. (www.razzasolutions.com) of Austin, TX. Razza's software allows customers to share data across financial and analytical applications. ▶

▶ Healthy Competition A LOOK AT THE MAJOR BI PROVIDERS AND THEIR RECENT MOVES.

Company:	Business Objects SA (www.businessobjects.com)	Noteworthy Moves:	Acquired ActiveViews Inc., a privately held reporting software specialist, in mid 2004; Business Scorecard Manager shipped Nov. 1; Microsoft Office 12 with BI capabilities slated for delivery next year.
Solution:	Business Objects XI		
Sample Customers:	Brown University (RI), Columbia University (NY), University of Michigan, University of Notre Dame (IN), University of Pennsylvania, Stanford University (CA), Vanderbilt University (TN)		
Worth Noting:	Revenue hit \$261.4 million for 3Q 2005, up 19% from 3Q 2004.		
Company:	Cognos Inc. (www.cognos.com)	Company:	Microstrategy Inc. (www.microstrategy.com)
Solution:	Cognos 8	Solution:	MicroStrategy 8
Sample Customers:	Idaho State University, Penn State University, University of Kent (UK), University of Toronto (Canada)	Sample Customers:	University of Bologna (Italy), University of Miami, Technical University of Munich (Germany)
Worth Noting:	Canada's largest software company; annual revenue is approaching (US) \$1 billion.	Worth Noting:	Third quarter 2005 revenue was \$65.8 million, versus \$60.6 million in the third quarter of 2004, a 9% increase.
Company:	Hyperion Solutions Corp. (www.hyperion.com)	Company:	Oracle Corp. (www.oracle.com)
Solution:	Hyperion System 9	Solution:	Oracle Business Intelligence 10g
Sample Customers:	Arizona State University, Cornell University (NY), University of Akron (OH), Yale University (CT)	Sample Customer:	Vanderbilt University (TN)
Noteworthy Moves:	Launched Hyperion System 9 in September.	Worth Noting:	The company's latest software initiative, Oracle Fusion Middleware, aims to integrate data from disparate systems.
Company:	Microsoft Corp. (www.microsoft.com)	Company:	SAS Institute Inc. (www.sas.com)
Solutions:	SQL Server Accelerator for BI	Solution:	SAS Enterprise BI Server
Sample Customers:	Medical University of South Carolina, University of Pittsburgh Medical Center, University of Wisconsin-Madison	Sample Customers:	University of Alabama, Sheffield University (UK)
		Worth Noting:	World's largest privately held software company; recently inked higher education software partnership with Datatel Corp.

Lenovo recommends Windows® XP Professional.



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INTRODUCING THE WIDESCREEN TITANIUM THINKPAD.

Get more of a good thing — 25% more. That's how much more data you can view on the new widescreen ThinkPad® notebook than on a traditional 14" screen. It's big on power and wireless connectivity too, with Intel® Pentium® M Processors and integrated Verizon Wireless WAN⁴. Now, students and staff have the ability to connect wherever Verizon offers wireless coverage. Plus, the model featured here has the new ThinkPad Roll Cage and a titanium cover to help keep it protected inside and out. Like all ThinkPad notebooks, the widescreen ThinkPad is a product of Lenovo, a new, global company uniting Lenovo and the former IBM PC Division under the Lenovo name. ThinkPad service and support continues to be available from IBM in many countries.

"an extremely attractive wide-screen model, loaded with features, cleverly engineered for light weight and reasonably priced." — *New York Times*, 9/29/05

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Educated Guesses

For CIO's and senior university administrators, BI industry consolidation arrives at a critical time. Choose the wrong BI platform for a specific university environment, and you could wind up with a dead-end solution.

When mulling a BI solution, ensure that the vendor is solidly profitable and well established in the higher education market (see "Healthy Competition," p. 42). Second, the platform should include integrated reporting tools; query and analysis features, online analytical processing capabilities, visualization tools, and Microsoft Office integration (see "Five Critical Components," above). Third, the BI offering should integrate with existing platforms, such as Datatel's enterprise management software for universities.

Eager to meet such needs, in October, SAS announced a far-reaching partnership with Datatel. The deal will provide Datatel customers with statistical, analytical, and predictive capabilities from SAS software. "By joining forces, SAS and

► Five Critical Components

Look for these five core components found in leading BI software platforms:

- **REPORTING TOOLS** allow users to produce and access reports across all levels of the university.
- **QUERY & ANALYSIS** allows users to raise new questions and identify answers rapidly.
- **OLAP** (online analytical processing) turns raw data into rich information that can be understood by users and manipulated in various ways.
- **VISUALIZATION** presents data in charts and graphs.
- **MICROSOFT OFFICE INTEGRATION** allows Microsoft Office users to share information between Excel and BI tools.

city. The biggest risk is multiple departments deploying multiple BI platforms without any central oversight. This scenario is eerily familiar to CIOs who wrestled with network software installations in the late 1980s and early 1990s.

When PC networks were in their infancy, universities installed a mix of Banyan Systems Inc. VINES, Digital Pathworks, IBM LAN Server, Microsoft Corp. LAN Manager, and Novell Inc. NetWare (www.novell.com). "In many universities, each department proceeded on its own and the result was a hodgepodge of

total cost of ownership, reduces training costs, and paves the way for best practices across an organization."

Start Small

Most successful BI projects start with a specific pain point in a single university department. At NYIT, the pain point was alumni giving. Founded in 1955, NYIT maintained alumni records on paper until around the 1990s. Director of Alumni Relations Jeff Morosoff has spent the past few years ensuring records for all graduates are input into a central NYIT



It took a decade for universities to standardize on a mix of Windows, Linux, and Unix. That's repeating itself in the BI marketplace.

Datatel will be able to provide higher education institutions with state-of-the-art planning and decision-making software to keep them competitive, strong, and student-focused," says Mark Milliron, VP, SAS Education Practice.

Milliron's optimism is easily explained: Once connected to SAS's software, universities will be able to leverage data held within the Datatel Colleague enterprise resource planning solution to view campuswide business operations, and also manage them for the future.

Common BI Setbacks

Unless managed at the CIO level, BI projects can easily overwhelm a univer-

sity. The biggest risk is multiple departments deploying multiple BI platforms without any central oversight. This scenario is eerily familiar to CIOs who wrestled with network software installations in the late 1980s and early 1990s.

When PC networks were in their infancy, universities installed a mix of Banyan Systems Inc. VINES, Digital Pathworks, IBM LAN Server, Microsoft Corp. LAN Manager, and Novell Inc. NetWare (www.novell.com). "In many universities, each department proceeded on its own and the result was a hodgepodge of incompatible network software," recalls Jill Cherveney-Keogh, director of Academic Computing at NYIT. It took roughly a decade for universities to sort out the incompatibilities, increasingly standardizing on a mix of Windows, Linux, and Unix. Now, that same scenario seems to be repeating itself in the BI marketplace. In the mid-1990s, university departments deployed a range of BI systems—some of which didn't work with one another. Now, universities are taking corrective actions. "We're seeing a shift to standardized, enterprise-wide BI solutions," confirms Scott Lawrence, director of Product Marketing at Cognos. "This typically lowers BI's

database. As the database gained more and more graduate names, NYIT had a richer and richer list of names to call on for annual giving programs.

Mauriello, NYIT's vice president of Development, joined the college in 2002 and immediately harnessed Morosoff's database work. The system was quickly linked with NYIT's Web site and e-mail systems, allowing alumni to donate online, and empowering NYIT to reach out to alumni electronically with a few points and clicks of a mouse.

Even if a BI project is limited to a departmental deployment, it's critical to keep the university CIO in the loop. Without CIO recognition and involve-

ment, other university departments may embark on BI projects of their own—without leveraging the knowledge and skill set gained from the initial BI project.

Competence Counts

In order to share BI expertise across an academic institution, many universities are opening so-called BI Competency Centers—a term coined by Gartner Inc. (www.gartner.com), the Stamford, CT-based technology research firm.

“A [BI Competency Center] enables an organization to coordinate and complement existing [BI] efforts, while reducing redundancy and increasing effectiveness,” asserts Patricia Whitaker, strategic programs director for Customer Solutions and Alliances at SAS. “The centralization of these efforts ensures that information and best practices are communicated and shared through the entire organization so that everyone can benefit from successes and best practices.”

Generally speaking, a BI Competency Center is a permanent, formal organizational structure comprising of members from a university’s offices of finance, development, enrollment, HR, and information systems, just to name a few. According to SAS, implementing a BI Competency Center provides multiple benefits, including: heightened credibility and confidence in university information; increased use of BI throughout the organization; accelerated and effective decision-making optimization of resources and decreased cost; and innovation of business processes through technology.

Ultimately, BI Competency Centers allow universities to leverage best practices for BI deployments across multiple schools or departments, notes Lawrence from Cognos.

Money Matters

Although BI software can empower multiple university departments, one of its best starting points appears to be the Office of Development.

Just ask **Yale University** (CT), where progressive fundraising provides 30 percent of the university’s annual operating

budget. Yale’s Office of Development gathers and stores donor information in an Oracle database, but the office—until recently—had no effective way of leveraging the information.

Eager to correct this shortcoming, Yale recently deployed Hyperion Software’s Brio Performance Suite to plan effective one-to-one marketing campaigns based on donor interests. From Web browsers, more than 160 fundraising staff and their managers can now view information about more than 100,000 donors in real time, enabling them to identify new fundraising opportunities and relate to donors on a more personal level.

“As the core of our business intelligence initiative, Brio enables us to be more sophisticated in our marketing efforts based on the individual interests of our donors,” says Marcia Schels, project manager for Yale’s Office of Development. “Brio enables fundraisers to access, view, and analyze donor affiliations, contribution history, and specific academic

and personal interests to develop campaigns around each donor segment.”

For example, if fundraising administrators know that a prospect is interested in the university’s building renovations or funding for academic scholarships, Yale can act quickly on that information, whether that means e-mailing relevant information or calling the prospect as part of a targeted phone campaign.

Translation: Yale’s fundraisers now spend far less time waiting on reports and doing paperwork, and more time talking to donors. In fact, since Brio’s deployment, annual giving to Yale has risen 10 percent and the Office of Development’s productivity has jumped by 25 percent.

Even as the BI industry gets set to consolidate around fewer software providers, it’s easy to see why Yale development officers retain their peace of mind. A lesson for your institution, perhaps? **CT**

Joseph C. Panettieri has covered Silicon Valley since 1992 for leading media IT brands.

▶▶ Seeing Green? OPEN SOURCE SPECIALIST GREENPLUM ATTEMPTS TO CASH IN ON BI.

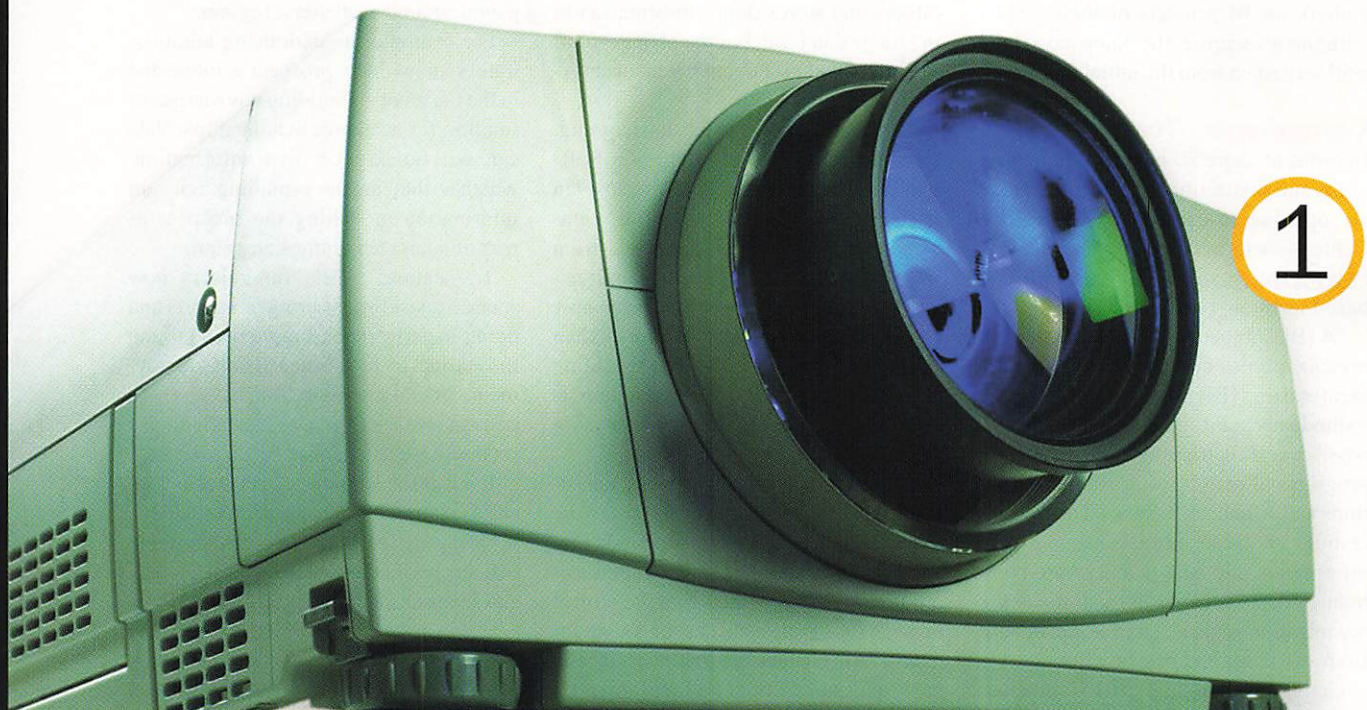
GREENPLUM (www.greenplum.com) is ripe with innovative software ideas. The tiny San Mateo, CA-based startup company is developing an open source database for commodity hardware that could revolutionize the BI marketplace.

“Imagine going to Google and waiting four days for your search results...No consumer would stand for that, yet CEOs and business managers tolerate exactly this on a daily basis when dealing with their BI systems,” says Sam Mohamad, Greenplum CEO. “By using an open source database optimized with a supercomputing architecture, [we aim] to give businesses the same flexibility with their data that consumers enjoy with...Google.”

Launched in 2003, Greenplum’s management team includes enterprise software veterans from Oracle (www.oracle.com), Teradata (www.teradata.com), and Tandem (acquired by Compaq/HP). Greenplum’s emerging product family, currently under development, includes Bizgres (www.bizgres.org), an open source, production-ready database server focused exclusively on the needs of BI applications. The free, downloadable database targets small-to-midsize organizations with entry-level and departmental workloads such as data marts and reporting applications in the 10GB to 300GB range. For larger corporate and university settings, Greenplum is developing Bizgres MPP (Massively Parallel Processing), a database server that can scale to support multi-terabyte data warehouses supported by low-cost server clusters.

Although it’s too early to grade Greenplum’s efforts, the company has considerable buzz among open source software enthusiasts.

Monitors and projectors are getting slicker and sleeker, but that doesn't mean setting up the smart classroom is without tribulation. By Will Craig



THE CHALLENGE OF NEXT- GENERATION

2



For her recent presentation at a private liberal arts college, a presenter confidently pulled out her laptop and set it on the table. Grabbing the handy VGA cable on the podium, she pulled it across to the table and pushed it against the back of her computer, but it didn't feel quite right. Examining the back of her laptop, she discovered that her new laptop did not have a familiar VGA output after all; it had a DVI connector. Tech folks and staffers ran here and there, trying to find an adaptor. In the end, the presentation began 15 minutes late.

Not too long ago at a city council meeting, a civil engineer plugged his laptop into the city council chamber's presentation system. His computer image appeared on all of the council and audience monitors, but not on the 17-inch annotation monitor built into the podium. Alas, the monitor could not handle the wide-aspect image from his laptop.

An architect recently designed a videoconferencing room with the instructor standing at a podium in the center of the room, directly in front of two rear projection screens. Now, the

Group (www.ddwg.org) to replace the analog VGA standard for computer graphics. The DVI standard supports bi-directional communication between the source and display device, to enable them to agree upon an optimized output signal. This feature, designed for ease of use during setup, makes integration more complex

when dealing with a classroom environment with multiple display devices. The five-meter maximum range of DVI also poses a challenge: Extenders are available, but since nearly every installed display device is more than 15 feet from the source, it's clearly not integration-friendly.

DVI is seen on two connectors—DVI-I and DVI-D. The DVI-I has pins for both DVI and analog VGA. With a suitable passive breakout adaptor, you can connect a VGA display to a DVI-I equipped source. The DVI-D connector is digital-only; it will only connect to a DVI display, unless you use a DVI-to-VGA converter/scaler.

HDMI (high definition multimedia interface), becoming more important in the integration world, is essentially DVI in an even more user-friendly format, with the addition of multi-channel

instructor is blinded by one or the other of the projectors, has no nearby whiteboard space on which to work, and the camera in the back of the room cannot pick up any detail of the instructor's face because of the brightly illuminated background. Because all the directional lights face the audience, there are only about 15 foot-candles of light on the instructor's face (when the projectors aren't blinding him), so the camera in the back of the room does a poor job of resolving facial detail for the distance education broadcast. How unfortunate.

These three examples, all true stories, highlight some of the greatest challenges in working with this latest generation of presentation and display systems. The same trends that are leading to the next generation of systems are creating hurdles to be overcome in current product usage. So, let's look at the trends and how they will impact (and be affected by) current technologies, then let's look ahead to the next generation of presentation and display, and what you will need to know to get there.

Trend 1: DVI and HDMI

The DVI (Digital Visual Interface) standard was developed by the Digital Display Working

audio. With a form factor similar to but slightly larger than a USB connector, HDMI is dominating the high-def consumer market.

Trend 2: Widescreen

Simply put, widescreen is taking over. If you need proof, go down to your local electronics retailer and compare the number of widescreen laptops for sale versus conventional 4:3 aspect models. Then compare the number of widescreen projection televisions versus 4:3 aspect models. The computer formats and resolutions that have ruled with an iron fist for the past 10-plus years are disappearing rapidly. ▶

1. Christie LX50 (www.christiedigital.com)
2. Sanyo PLC-XP56 (www.sanyolcd.com)
3. VTG-400 (www.extron.com)



3



Still, not all widescreen is the same. Even within one resolution "standard," WXGA, there are multiple native resolutions (1365x768 for large monitors and projectors, 1280x768 for smaller monitors). Then there's 1920x1080, 2560x1600, 1280x720, 1440x900, and more. And the aspect ratios of wide-screen displays aren't consistently 16:9; 15:9 is common, and you'll find 16:10 out there, too.

Practical considerations for wide-screen begin with the layout of the room. Wide aspect projection screens mean less room in the front for whiteboards, and more encroachment on where the instructor would stand. The projector typically needs to be positioned much farther back than a conventional 4:3 projector, since the image is significantly wider, and a longer throw distance is generally required. Where projector location is dictated by ceiling soffits or rear projection room dimensions, this can be troublesome.

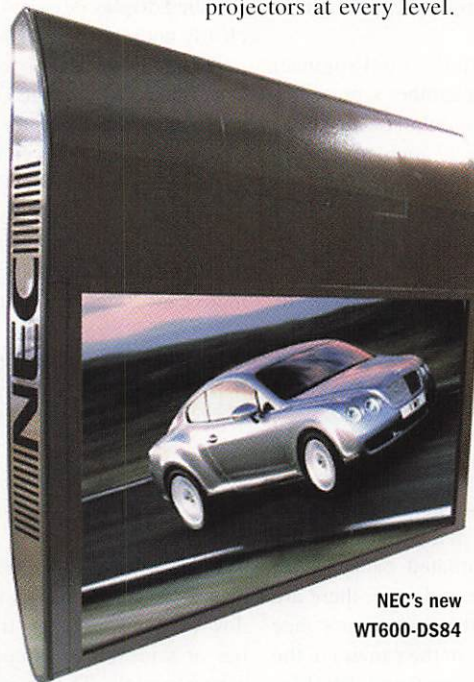
Using wide aspect monitors means that the images are less tall than a comparably sized 4:3 display, so the diagonal monitor size must be larger in order to provide an equivalent-sized image. For example, a 50-inch 4:3 projection monitor has an image height of 30 inches. A 50-inch diagonal 16:9 projection monitor has an image height of only 24.5 inches. You would have to upgrade to the 60-inch 16:9 monitor in order to get back to a 29.4-inch image height. Larger monitor sizes for equivalent viewing considerations mean a larger footprint (new widescreen monitors may not fit on old stands or carts) and higher costs (60-inch 16:9 models cost \$500 to \$1,000 more than 50-inch models).

Finally, widescreen resolutions are not compatible with some legacy equipment—perhaps those 17- and 19-inch SXGA monitors you just bought with year-end money. When considering any display purchase, the question "How does it handle widescreen?" must

become your mantra. If you want to verify that your sales rep is telling the truth, the Extron (www.extron.com) VTG-300 and VTG-400 test signal generators make product testing (and lie detecting) easy, and even fun.

Trend 3: Projectors Everywhere

A projector in every classroom is a condition no longer exclusively found in higher education; K-12 districts across the country are installing thousands of projectors at every level.



NEC's new
WT600-DS84

And, colleges and universities are now relying on projection, front and rear, to enhance instruction in all fields of study.

Unfortunately, room designers have often failed to solve the problems that must be addressed when using projection technology in an instructional space:

- ▶ **Too much (any) ambient light** on the projection screen
- ▶ **Inadequate lighting** of instructor and whiteboards
- ▶ **Imbalance of whiteboard space** access and the projection screen
- ▶ **Inadequate sizing of screen** and sightlines from audience
- ▶ **Instructor "wander zone" interfering**

with projector light field

- ▶ **distance education/IP cameras** pointed toward screens
- ▶ **Projector fan noise**

When these problems are not solved, a projector can actually detract from the learning experience. Rear projection, when properly implemented, can solve many of these problems, but the cost in equipment and square footage is often prohibitive.

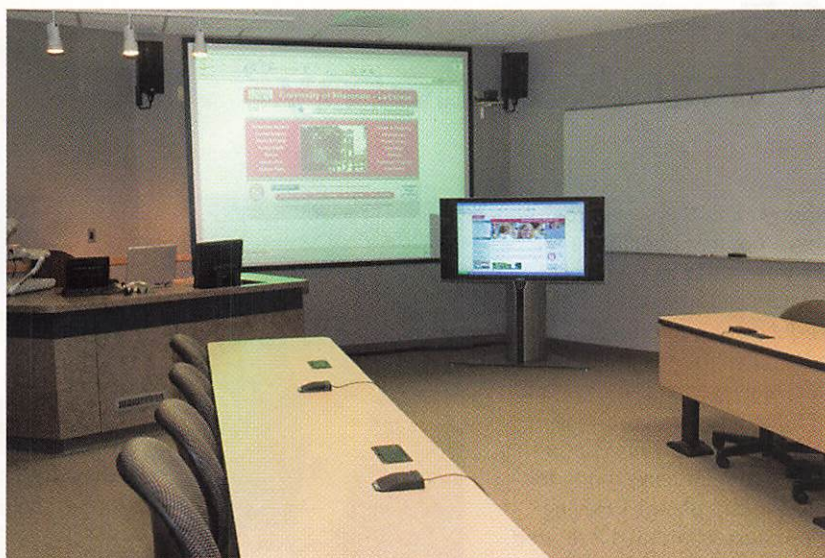
Yet, if implementing front projection has so many potential (and sometimes unavoidable) pitfalls, why do smart people keep doing it? The reason is that the image is so big. Trying to show an extremely detailed computer image to people sitting 25 feet away using a 42-inch plasma screen (or even a 60-inch model) is insufficient. People need to see an image that is of sufficient size to resolve the detail that is presented, over the distance across which it is viewed. It's essentially a three-variable equation, with distance, size, and detail affecting each other to produce the optimal viewing solution.

Until rear projection monitors (or direct-view flat panels) are large enough to provide equivalent-sized images to projectors, there will still be projectors hanging in classrooms—faults and all.

Seeking Perfection

Industry marketers are always pitching the Next Best Thing. But how do we know whether a new product is next generation or simply next-incremental-improvement? Incremental steps are necessary and beneficial, but the term "next generation" should be something that moves us toward something. What is the ultimate classroom display system? Here are four criteria that would need to be met:

- ▶ **Large enough** for everyone to see comfortably
- ▶ **High-enough contrast** for images to look natural in all lighting conditions
- ▶ **Flexible** in accommodating various resolutions and aspect ratios
- ▶ **Form factor** that does not interfere with classroom activities



GOOD USE OF 50-INCH DLP rear projection monitors at the University of Wisconsin-La Crosse.

Current Technologies

Love them or hate them, there is little available right now in the area of projectors to suggest "next generation." In terms of meeting the criteria of the ultimate classroom display system, front projectors do well in terms of image size. The main area of weakness for projectors is in image contrast (front projection), where the lighting in the front of the room needs to be carefully controlled to avoid the image being washed out. Projectors vary by manufacturer

classroom difficult to achieve.

Small (sub-20 lb.) projectors are continuing to get brighter: The Christie LX50 (www.christiedigital.com) and Sanyo PLC-XP56 (www.sanyolcd.com) are prime examples. Ultimately, it's not the brightness of the projector that matters to the end user, but rather the amount of light per square inch of screen. To get an image on a 150-inch diagonal screen that compares in perceived brightness to a 2500-ANSI lumen projector shining on a 100-inch

opment of large-screen projection monitors. While monitors do well as compared with front projection in terms of image contrast, they continue to fall short in terms of image size. And, monitors currently are moving faster than projectors toward HDMI as the sole input, making integration with existing analog systems more complex.

The Next Generation

What are the products we will be putting into classrooms in the next three to five years? Some of them may look like...

1—Really Big Monitors. For a time, NEC offered the WT600-DS84 (www.necvisualsystems.com) with an 84-inch diagonal image in a 16:9 aspect ratio. While the specifications stated that it would handle "up to 1920x1080 (1080i)," this single-chip DMD device had a native resolution of 1024x576. Oh, and the list price was \$19,995. As a first-generation/next-generation product, though, it met the four criteria, at least for small-to-midsize classrooms: It was large, not greatly affected by ambient lighting, and it handled a wide variety of input signals and resolutions (VGA and DVI input connectors, and handled HDTV), and the form factor was reasonably compact—only 22.5 inches deep. Hopefully, more manufacturers will look at the potential for this

“Until rear projection monitors (or direct-view flat panels) are large enough to provide equivalent-sized images to projectors, there will still be projectors hanging in classrooms—faults and all.”

and model in terms of how they handle various resolutions and aspect ratios. As of press time, very few 3000-plus ANSI lumen brightness, affordable (sub-\$20,000), and native 16:9 projectors are available. And projectors dictate to a large extent the layout and design of a classroom: Once in place, the projector(s) and screen(s) aren't likely to be moved, making reconfiguration of the

diagonal screen, the projector would need to be more than twice as bright. So while a 5000-ANSI lumen projector might be uncomfortably bright on a 70-inch screen, it will work fine with bigger screens in larger rooms.

Monitors are seeing changes and growth, both as flat panels are released in larger sizes and lower price points, and as HDTV continues to drive devel-

type of product, both in classrooms as well as in the home. Watch for prices to drop as second- and third-generation products emerge.

2—Pretty Big Monitors. Terry Wirkus, Distance Education manager at the University of Wisconsin-La Crosse, reports that he is very satisfied with several Samsung (www.samsung.com)

Continued on page 57

Transformations in Higher Education

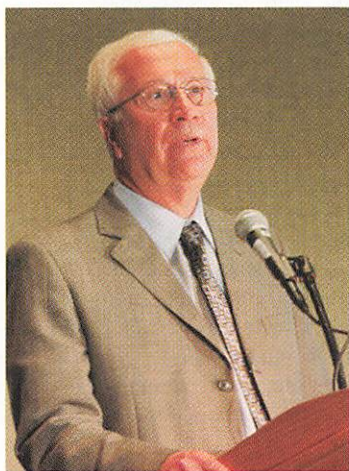
Educause 2005— “Transforming the Academy”

The participation age. If “the network is the computer,” and everyone is connected to the network, you have optimal conditions for the “participation age” in which communities interact in increasingly meaningful and productive ways. Right, Sun Microsystems (www.sun.com) CEO Scott McNealy’s keynote at this year’s Educause conference explored participation-age opportunities and challenges for the education community. Notable among the ideas McNealy was eager to share with attendees: his plans to foster a Global Education and Learning Community (GELC; community.java.net/edu-gelc). McNealy envisions this community as “a free and open, self-paced, Web-based community for students to get access to the best curriculum on the planet.” Having embarked on a decades-long effort, GELC has started with K-12-related work and will eventually expand to include all educational levels.

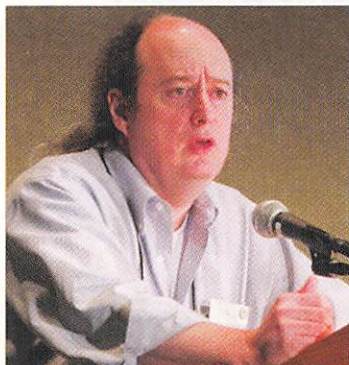


Leadership: It’s alchemy.

This year’s Educause award for Excellence in Leadership went to Ron Bleed (left), vice chancellor for Information Technologies at **Maricopa Community Colleges** (AZ) and CT editorial advisory board member. After his featured session, “Rewind to Fast Forward,” CT asked Bleed what’s most important for IT leadership to focus on, going forward. “I think the challenge for us in IT will be to bring together all kinds of forces. I’ve used the analogy of alchemy,” he said. “We need to look at just what the end product is—what that gold is. But I really do believe that it will include more visual images, more flexibility in course scheduling, and better design of spaces.” Other leadership awards went to Annie Stunden, CIO, the **University of Wisconsin-Madison**, for Leadership in the Profession; and to Clifford Lynch, executive director of the Coalition for Networked Information (CNI; www.cni.org), for Leadership in Public Policy and Practice.



Data deluge. In his featured session, “The Data Deluge Hits Campus,” CNI’s Clifford Lynch (left) explored the impact of eScholarship and the institutional challenges presented by the resulting tidal wave of digital data. Things to consider: long-term preservation and short-term survivability issues, data management for the eSciences, appropriate curation and dissemination of all sorts of data sets in various scholarly disciplines, collaboration among institutions and federated repositories, and more. It really is a deluge.



Strolling the exhibits. Attendees browsed a large hall for interesting exhibits from hardware and software vendors, consultants and integrators, and publishers—and many found our own *Campus Technology* booth (far right).



CIC's "Transformation of the College Library" Workshops

Advancing information literacy.

In a series of workshops designed for its membership, the Council of Independent Colleges (CIC; www.cic.edu) is tackling issues related to the changing nature of the library in the digital age. During one of this year's workshops held in Chicago this past fall, CIC President Rich Eckman (top photo, left, with speaker Rick Detweiler, right), explained to CT: "Over the past decade, as the major research libraries were quick to take advantage of new technological innovations, many of the smaller institutions were left by the sidelines. And so, our effort through these workshops is to help the smaller institutions catch up with some very important developments that affect libraries, technology, and the role of faculty at all institutions." How can you prepare your campus for these changes? Detweiler, president of the Great Lakes Colleges Association, offered an "Introduction to Effecting Change on Campus."



A plan for your campus. Susan Perry (right), senior advisor to the Andrew W. Mellon Foundation and director of Programs for the Council on Library and Information Resources (CLIR; www.clir.org), presented "Key Considerations in Advancing an Information Literacy Program," a session to help teams begin to formulate specific plans for programs on their own campuses.



Sharing strategies. An important element of the workshops is the team interactions that occur during intensive planning sessions. As part of the planning process, cross-institutional teams are paired to compare and fine-tune the strategies they will take back to their campuses. Left, a team from **Eureka College** (IL) presents its plan to a team from **Ohio Valley College** (WV). The workshops, which have been held for nearly three years in various cities across the country, will continue with workshops in Nashville and Boston this spring. For more information, see www.cic.org/conferences_events/index.asp. **CT**

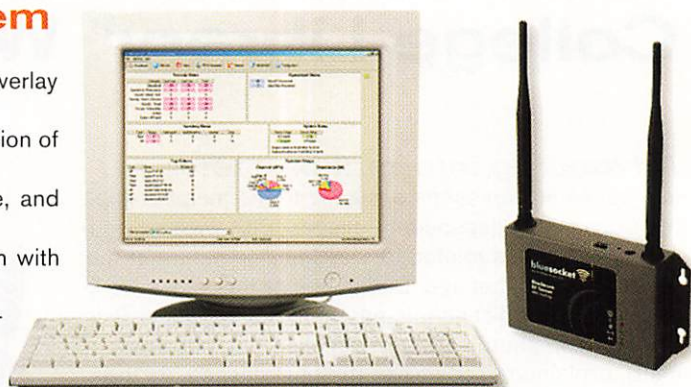
CT Solutions

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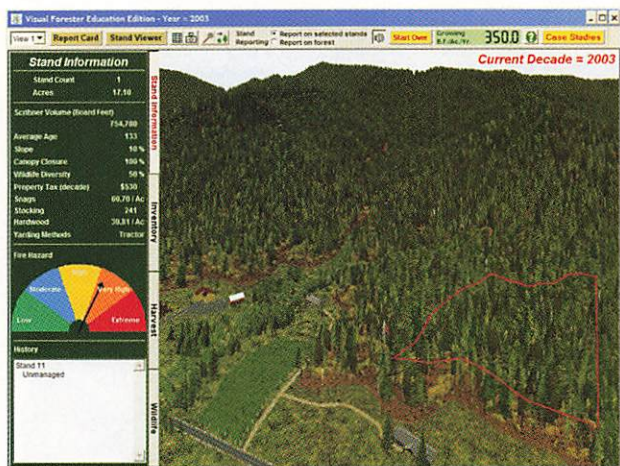
Intrusion Protection System

Bluesocket's *Intrusion Protection System* (IPS) can overlay a school's existing network without requiring modification of the school's existing wired or wireless infrastructure, and scales from small to large WLAN deployments—even with hundreds of access points. *IPS* can protect the enterprise from all types of rogue devices, including

access points, rogue clients, neighboring WLANs, peer-to-peer (ad hoc) networks, and software access points, as they appear. Price: \$2,250 to \$11,495 (depending on the number of sensors). www.bluesocket.com.



Stepping out of the Classroom

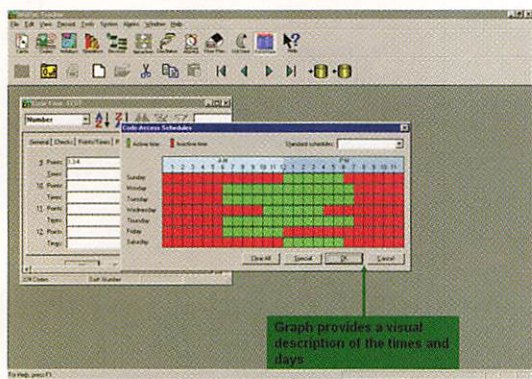


Education non-profit **Forest Foundation**, dedicated to sharing knowledge about forests, is offering instructors a free, interactive software program where students get a virtual field trip experience into California's forests. *Virtual Forester* is an integrated forest management simulator with an interactive interface, suitable for all audiences. The simulator allows instructors to use a tool similar to what is available to today's foresters, including planning for upcoming tree growth and harvests, and mapping a 100-year management strategy. Free to instructors based in California. www.calforestfoundation.org.

Managing Contracts

Supplier management and procurement solutions provider **SciQuest** has released *Contract Manager*, the latest addition to its suite of spend management and procurement automation tools. *Contract Manager* provides tracking, reporting, and analysis capabilities so that college and university administrators can better manage contracts and meet regulatory reporting and compliance. Also, a centralized repository makes it easy for administrators to store, find, and view contracts. www.sciquest.com.

Access Control for Campus Security



Designed to support several buildings simultaneously on the campus, **Synergistics Inc.**, a provider of complete access control systems of cardholder technology, introduces *WAPAC-PRO*. From the newest generation of its software line, *PRO* can handle over 4,000 alarm inputs and relay outputs for automated building management access installed in buildings. The system is also equipped with alarm graphics, alarm prioritization, and is expand-

able up to 80,000 cardholders per integration. www.synergisticsinc.com.

Enhanced Registration

SunGard SCT has released *SCT PowerCAMPUS 6.0* and *IQ.Web 4.0*, designed to help colleges and universities with enhanced registration and payment convenience for learners. *PowerCAMPUS* helps to unify the administrative and academic function of campuswide departments, and *IQ.Web* gives students, faculty, and staff secure, online access to that system. Institutions can now open the registration process outside of the admissions cycle to allow non-traditional learners to sign up for continuing education classes. In addition, students can make and manage tuition payments online, reducing time for check processing. Price is based on the number of users and licensed fees. www.sungardsct.com.

Alternative Face-to-Face Communication

Rutgers University (NJ) recently adopted **Sony's PCS-TL50** IP-based desktop videoconferencing unit, part of Sony's IPELA technology line (Integrated Visual Communication, person-to-person, location-to-location) that enables institutions to conduct regular meetings across its campuses. *PCS-TL50* has a 20-inch LCD monitor and doubles as a PC monitor with an embedded camera,



microphone, and speakers. "In the past, driving to and from in-person meetings has been the first, preferred method for our deans to gather together, and changing such embedded habits is difficult," says Raphael J. Caprio, VP for Continuous Education and Outreach at Rutgers. Priced at: \$5,000. www.sony.com/ipela. **CT**

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"Okay, thanks."

"Michael, you're not listening. That's a great shirt; I want it."

"Oh, okay," Michael said, seeing the light at last. "I understand. I'll send it to you after the conference."

"Michael, I really like the shirt. I want to go home with it."

"But I've been wearing it for the past few days while I do booth duty. I'll wash it and send it to you."

Not good enough for the client. "I want it now," he said.

Michael found a t-shirt he could wear as he was packing up the booth, and gave the customer the shirt off his back.

It's interesting—often entertaining—to watch the *gimme* behavior of grown academics and campus IT professionals at these conferences. The corporate personnel often refer to the *gimme* behavior as one aspect of "the higher ed handshake"—the extended academic hand that reaches for your pocket and grabs stuff.

Distressing as it is to see *gimme* behavior at work with the vendors, it is also a concern as it migrates into the interactions

"Gimme behavior is a cause for concern as it migrates into the interactions among academics."

among academics. After all, our medium of exchange is content and intellectual property, not t-shirts or notepads.

Yet, consider an e-mail I received following my 2005 Campus Computing Survey presentation (www.campuscomputing.net) at Educause in Orlando: "I loved your survey discussion. I would like to use some points for a presentation I have early next week. Can you send me a copy? It was not posted yet [on the Educause conference Web site]. Thank you in advance." Admittedly, it was a nice comment about my presentation. But it was also a clear statement of expectation: *Gimme*, as I need your materials for my work.

Perhaps this is simply part of the culture of academe—an expectation that we give (or "share") stuff, an expectation that we are entitled to one another's "stuff"—t-shirts and notepads from the vendors; content, syllabi, and intellectual property from other academics and professionals in the campus community. Perhaps. But I'm also reminded of the comment I once heard from an executive in the publishing industry: "Faculty feel everything should be free—except *their* stuff, which should cost a lot of money!"

Maybe *gimme* behavior is simply endemic to who we are and what we do in academe. Then again, maybe the Internet and the Web have simply made us more aware of our *gimme* behavior, made it more visible as people we know—and many we don't know—reach for our stuff. **CT**

Kenneth C. Green is founding director of the Campus Computing Project (www.campuscomputing.net)

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a fee from Tenable Network Security (www.tenablesecurity.com); those updates also can be obtained for free, seven days after their initial release. The good news for colleges and universities using other open source scanners is that the National Institute of Standards and Technology maintains the National Vulnerability Database (nvd.nist.gov) that integrates all publicly available United States government vulnerability resources and provides references to industry resources. The NVD is updated on an hourly basis on normal US government business days, and is based on and synchronized with the CVE naming standard available at cve.mitre.org.

Another resource for open source users is Cassandra (casandra.cerias.purdue.edu), named for the woman who warned the Trojans about bringing a large wooden horse into Troy. Cassandra is operated by Purdue University's Center for Education and Research in Information Assurance and Security (CERIAS), and uses the NVD database to provide customized e-mail notifications of vulnerabilities.

Finally, there is a trend toward considering vulnerability scans as an integrated part of an IT security strategy—and that implies a centrally managed overarching system that integrates vulnerability scans with other security procedures. As you would expect, commercial vendors are rushing to develop proprietary solutions (based upon their products) to control, monitor, and analyze threats from one central location. ISS's SiteProtector is a good example. An alternative, based upon open source components such as Nessus, is Bradford's Campus Manager (www.bradfordnetworks.com), which has been adopted at Central Michigan University and Fitchburg State College (MA).

What's Right for Your Institution?

With so many choices, what should an institution do? The answer depends largely on the size and skill of the internal technical staff. Institutions with internal technical staff resources tend toward the use of free products such as Nessus or SARA. For example, Gregory Hedrick, manager of Security Services at Purdue, describes their model as a centralized self-service model in which the central IT unit runs Nessus but supports an interface that makes it easy for distributed campus network administrators to use the central system to scan their networks. Institutions without available staff resources may elect commercial (albeit expensive) solutions, or the use of external consultants. Still others are in the process of developing a strategy appropriate to their institution. For any institution, I highly recommend joining (or at least monitoring) the Educause Security Discussion Group (www.educause.edu/SecurityDiscussionGroup/979). Finding out what approaches others are taking—and why—is an excellent way to ponder your own options. **CT**

Doug Gale is president of Information Technology Associates, LLC (www.itassociates.org) an IT consultancy specializing in higher education. He has more than 30 years of experience in higher education as a faculty member, CIO, and research administrator.

Continued from page 24

Packard (www.hp.com), Toshiba (www.toshiba.com) and Dell (www.dell.com), essentially combine high-end wireless PDA functions and cell phones in a single device. The pilot devices come with instant and text messaging, plus software.

According to Wake Forest CIO Jay Dominick, the study is beginning to suggest that a PDA-plus-phone is a far more compelling device for students than a mere e-mail account or standard PDA device. Students participating in the study have the option of turning on phone service to their Pocket PCs, or not. Those who elect to turn on cell phone service tend to bring their devices to class; those who don't, often don't. Clearly, once the device becomes a phone, it gains a "stickiness" way beyond that of a mere PDA.

E-mail, IM, and Text Messaging

As for how students use the cell phone/PDA devices, IM-ing is still popular—it's one of the first applications students install. And e-mail-on-the-go is popular as well, showing that when e-mail is portable and "instant," it remains important for students.

Of course, since e-mail offers an official record of exchanges (although how long to keep the messages is a significant decision for corporations and universities alike) it's not going away anytime soon. Gartner (www.gartner.com) analyst Marti Harris points out that universities aren't likely to begin sending via IM—nor are students likely to want via IM—official messages about registration deadlines, for example, no matter how quickly they might reach students. There's an informal and temporary feel to IM that doesn't lend itself to that. And text messaging, with its many abbreviations, is even less formal, and so less likely to be used for serious communications.

Yet, Wake Forest's Dominick points out that one of the beauties of text messaging is that it can be used to reach students quickly and relatively inexpensively anywhere in the world. Indeed, one of the advantages of text messaging may be its ubiquitous reach when other methods fail. Reports after Hurricane Katrina indicated that when more traditional communications systems had failed, people were still able to text message via cell phones.

New Challenges

The popularity of cell phones, and their use for text messaging, opens up brand-new issues for universities, as with any new technology. During exams, for instance, classrooms need to be monitored for illicit cell phone use, since both text messaging and IM-ing are fast and silent.

The Wake Forest study already suggests that the traditional PDA will eventually disappear, as its functions are incorporated into phones. Eventually, perhaps, e-mail will be yesterday's technology, too. We'll all carry smart cell phones brimming with features and capabilities, many of which are already here in some form: GPS, continual presence-awareness of other users, the ability to download video for viewing now or later on another device, and more. And as usual, university students are pointing the way. **CT**

Linda L. Briggs is a freelance writer based in San Diego, CA.

Continued from page 49

50-inch DLP rear projection monitors that have been used in his classrooms for a variety of applications, including computer presentations. With 60-inch monitors currently selling for \$2,500 to \$3,500, they represent an affordable and viable solution for smaller rooms, or where there are opportunities for placement of additional monitors toward the rear of larger/longer rooms.

Monitors in this size and price category come in at least three varieties appropriate for classroom use: LCD, DLP, and D-ILA. Many video purists insist that CRT and/or DLP are superior for video due to higher black levels and greater color contrast. However, it's important to know that a small percentage of DLP viewers can be bothered by a phenomenon known as "rainbow artifacts," wherein the viewer sees a blur of color around the monitor (this is especially noticeable via peripheral vision). Newer, higher-speed DLP devices have reduced this problem, but some people remain sensitive to it. One should also keep in mind that computer-centric users may prefer LCD, pointing out the sharper pixel lines. If you want to compare the technologies side by side, I recommend that you take a field trip to your local big-box electronics retailer. Keep in mind that the settings made to each display in the store (by the salespeople or by inquisitive customers) can make any display look better or worse than another. The truth of the matter is, with a little adjusting, they all can look pretty good.

3—Next-Generation Projectors. While not really new, I contend that the NEC WT-610 (www.necvisualsystems.com) is a second-generation/next-generation product. The projector's ability to throw a large image from a short distance allows a user to build (or commission) his own inexpensive rear-projection kiosks. Front projection works as well, solving most of the light path problems of a typical front-projection installation: The projector can be mounted just off the front wall of the room, above the screen, if necessary. While the brightness rating has increased from 1500 ANSI (WT-600) to 2000 ANSI lumens (WT-610), potential buyers should know that it's still not really bright enough for larger screens (100-inches-plus), depending on the ambient room lighting. For rear projection applications, though, this should do fine.

Another first-generation/next-generation projector is the Sanyo PLV-WF10. It offers WXGA (1365x768) native resolution with 4000 ANSI lumens of brightness, at a list price of \$12,995. A few cautions, however, when considering purchase of this product: The noise rating is 46dB, the PLV-WF10 weighs over 46 lbs, it uses two projection lamps (doubling lamp replacement cost), and the list price does not include a lens. What makes the PLV-WF10 exceptional is that it offers true WXGA resolution at high brightness something that the many 1280x720 home theater projectors out there fail to do. **CT**

Will Craig is a Multimedia Systems Design Consultant for Elert & Associates (www.elert.com), a nationwide multidisciplinary technology consulting firm that is based in Stillwater, MN.

It's Your (Data) Decision

10 misconceptions about business intelligence

Information Technology Services Director Matt Gargano has just launched a major initiative to bring business intelligence (BI) and a culture of data-driven decision-making to Highland Community College (IL). His twin goals of delivering online services and re-engineering business processes for the college have given him both close-up and "big picture"

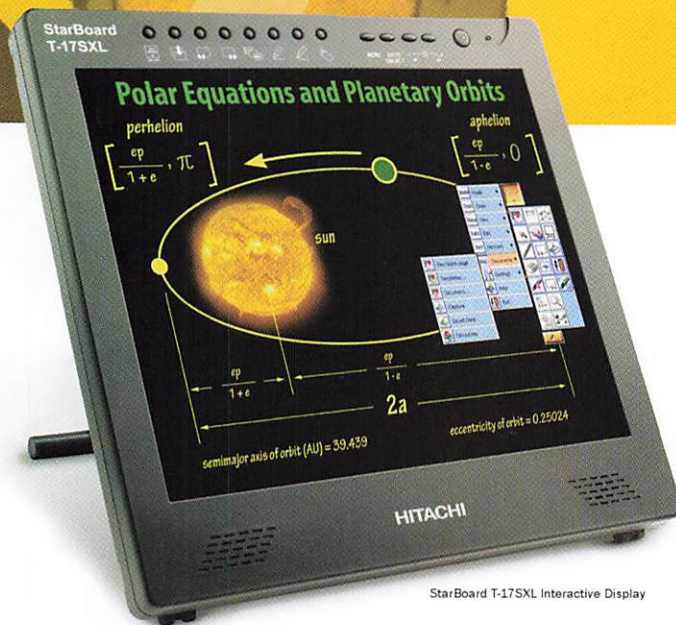


views of data warehousing and information access; he knows what it means to introduce a new BI solution to higher ed decision-makers. During the past five years, Gargano has spearheaded Highland's BI effort, working with the institution's key decision-makers and co-chairing two critical Academic Quality Improvement Program (AQIP) re-accreditation committees: Information Access and Data-Driven Decision-Making, and Measuring Effectiveness. He's immersed himself in BI processes and has found that there are several false assumptions that could easily derail an otherwise powerful effort. For *CT*, he reveals the "Top 10" misconceptions about BI...

Want to be considered for *Campus Technology's* Top 10? Send your countdown and a brief background/bio summary to mgrush@101com.com

- 10 Misconception: Data drives decisions.**
 - Data is: *just data*.
 - It is access and analysis that make "data-driven" decision-making work.
- 9 Misconception: Numbers don't lie.**
 - Watch out! Bad data drives bad decisions.
 - Data must be timely, consistent, and accurate, to lead to good decisions.
- 8 Misconception: I have all the information I need.**
 - If you are looking at siloed data, chances are you don't have the full story.
 - Departmental decisions sometimes conflict with institutional goals and missions, for lack of institutional data and context.
- 7 Misconception: The information I need doesn't exist, right?**
 - No; most likely, it's there. Enterprise data warehouses can provide relevant, cross-institutional information for the users who need it.
 - Access to enterprise data helps ensure consistent information for your institution's decision-makers. Promote your data warehouse!
- 6 Misconception: IT owns the data.**
 - IT is the steward entrusted with the systems that capture and store data.
 - Business users own and utilize the information (and analysis) that the data provides, to make *their* decisions.
- 5 Misconception: You need to be a statistician to analyze data.**
 - Business intelligence (BI) solutions can provide business users the information they need in a way that they can understand it.
 - Users can set parameters to get data when and how they need it.
- 4 Misconception: All business intelligence solutions are about the same.**
 - Not true; and that's especially important to know if you are in higher education.
 - Higher ed is unique and requires solutions developed to address its particular needs.
 - BI solutions must use industry-specific data models, data definitions, and business rules.
- 3 Misconception: It takes too long to implement data warehouse solutions, leaving us unclear about the benefits.**
 - Actually, BI solutions with pre-built data warehouses, data models, and extraction capabilities can provide a real head start.
 - Of course, the sooner the rollout, the sooner the benefit.
- 2 Misconception: BI solutions cost too much for my institution.**
 - Think more broadly! The cost of bad decisions as they relate to accountability, competitiveness, and service to students may be the *greater* institutional expense.
 - Consider one of the deadliest factors: the hidden cost of lost opportunities for revenue or services that were not identified.
- 1 Misconception: I don't need data to make decisions!**
 - Look around—the higher education environment is changing.
 - Today, relying on experience alone probably means you have incomplete information.
 - Analyzing data for trends and decision support provides a competitive advantage...and don't think you won't be needing that! **CT**

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